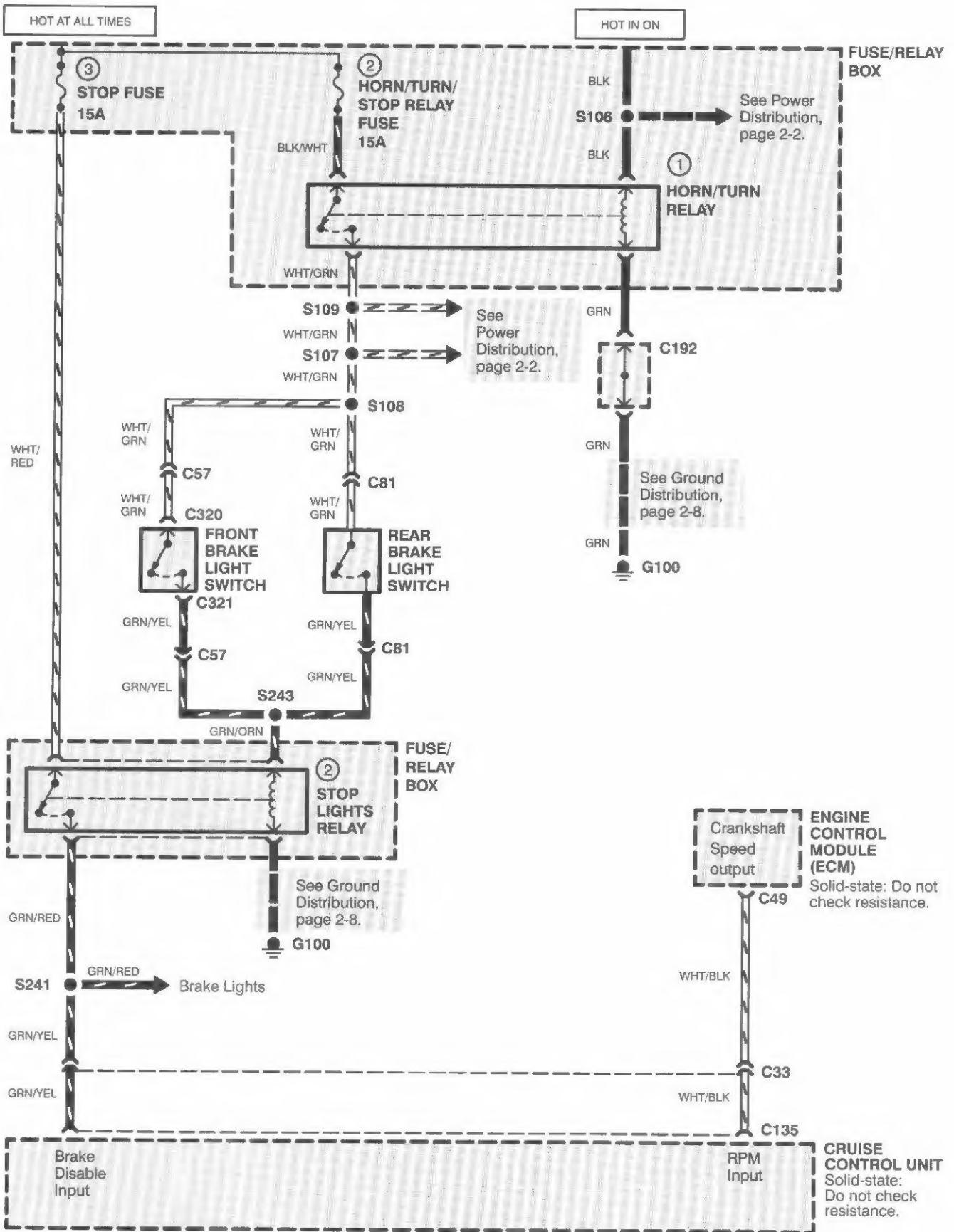
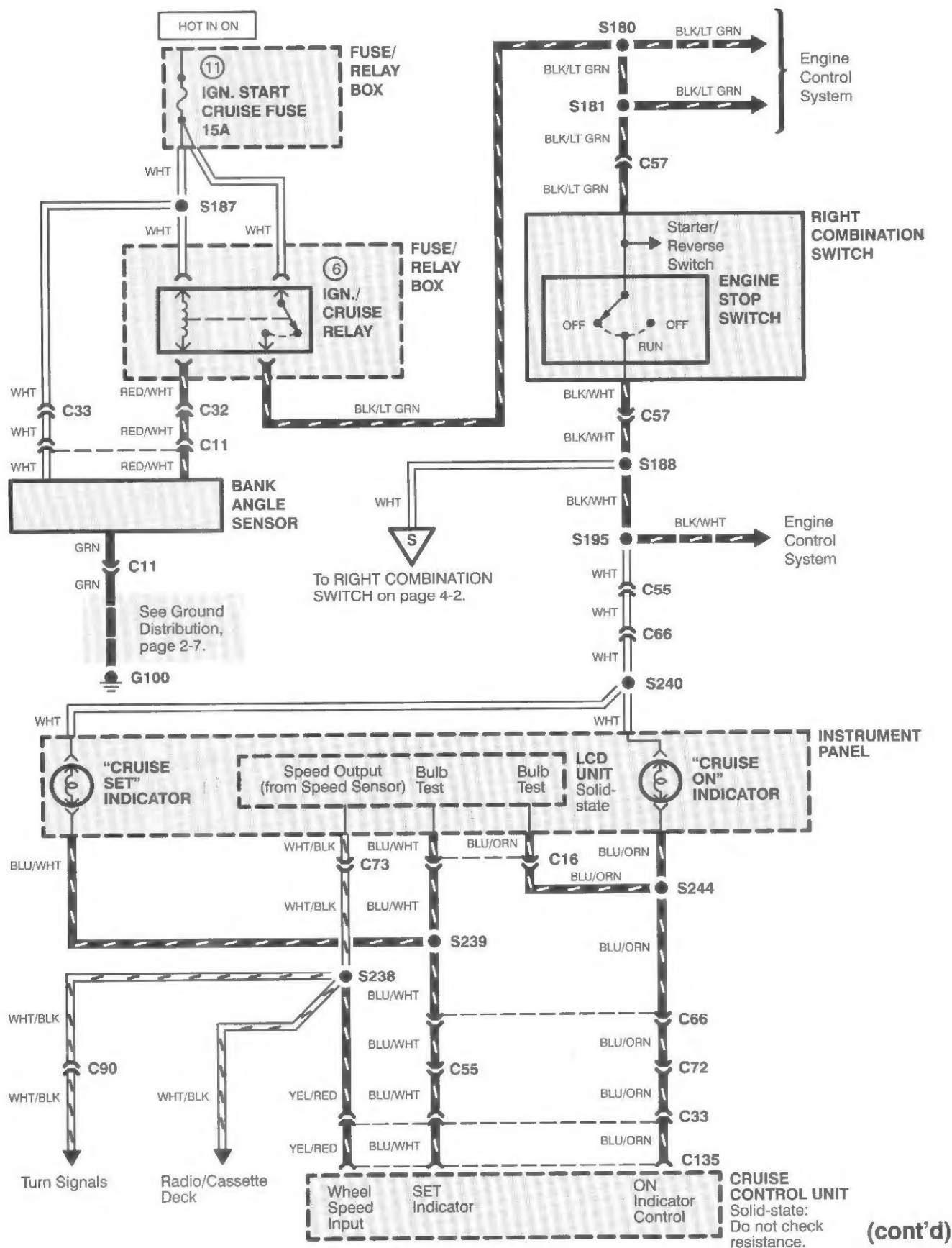


Cruise Control

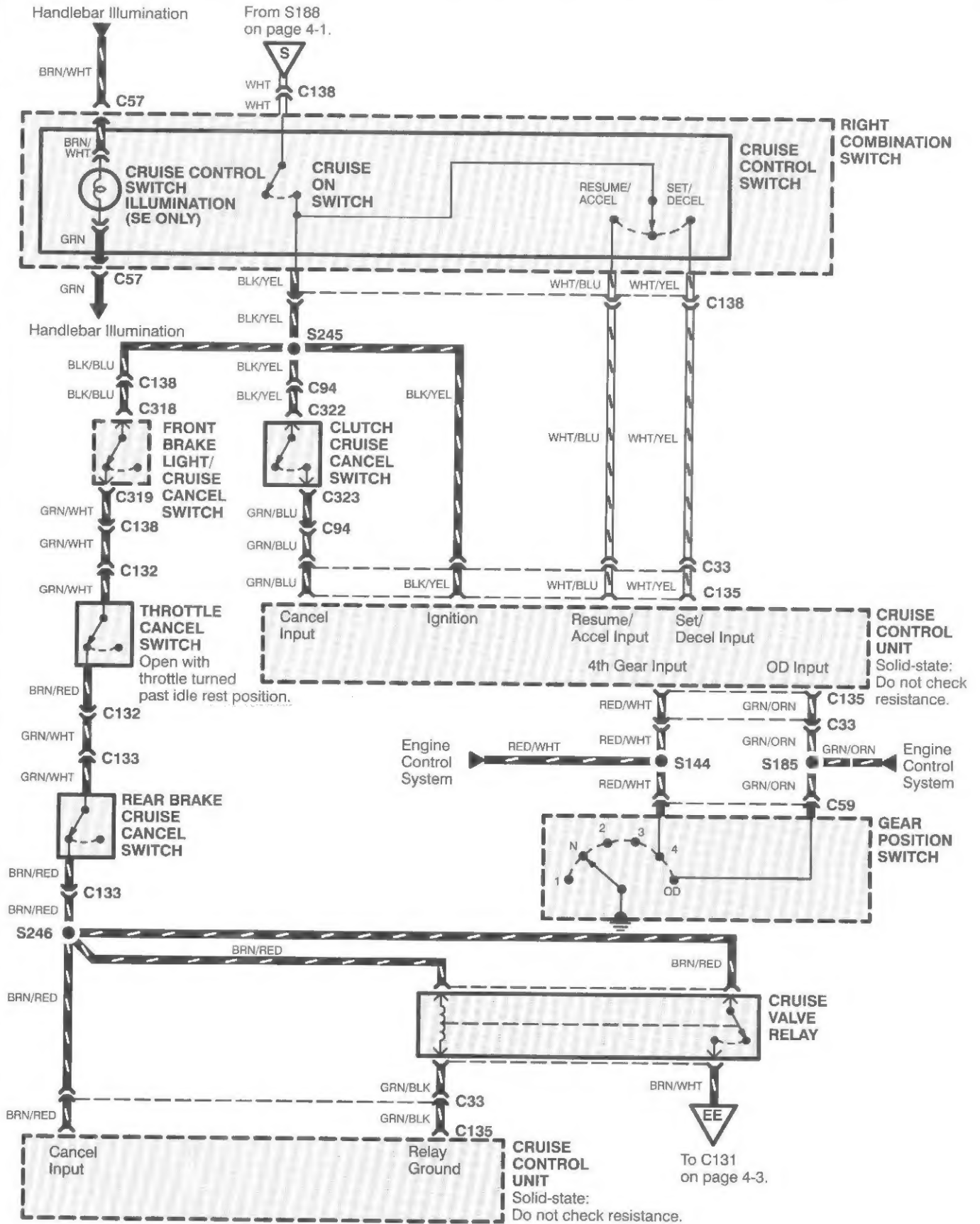
Circuit Schematic

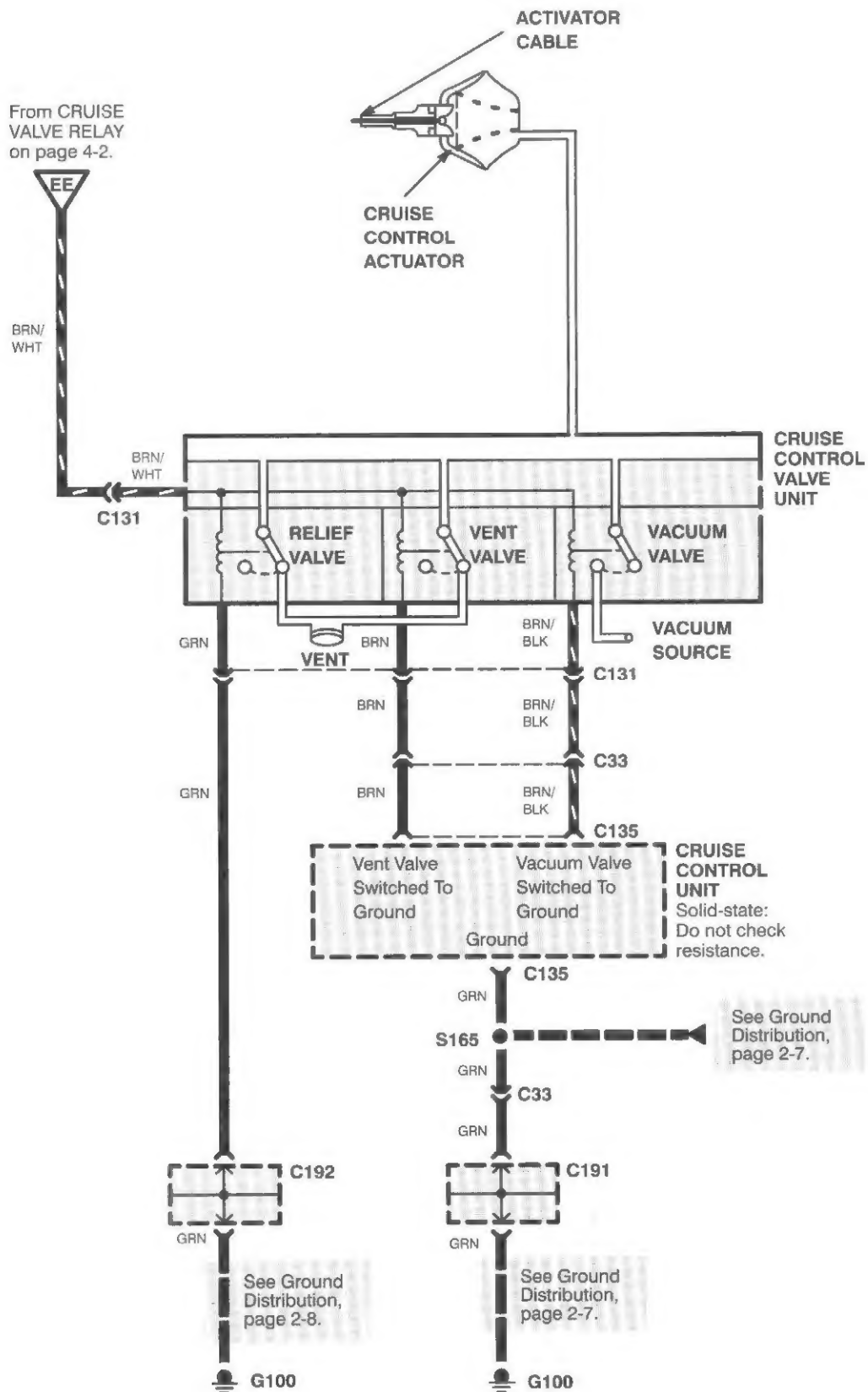




Cruise Control

Circuit Schematic (cont'd)





Cruise Control

How the Circuit Works

The cruise control system uses the following components to control vehicle speed in the cruise control mode:

- Clutch cruise cancel switch
- Cruise control actuator
- Cruise control switch
- Cruise control unit
- Cruise control valve unit
- Cruise valve relay
- Engine control module (ECM)
- Front brake light/cruise cancel switch
- Gear position switch
- Instrument panel
- Rear brake cruise cancel switch
- Throttle cancel switch

The cruise control unit receives several signals to operate. It must receive a battery voltage signal from the engine stop switch and the cruise ON switch at its ignition input. There must be a battery voltage signal at the cancel input that receives voltage from the front brake light/cruise cancel switch, throttle cancel switch, and rear brake cruise cancel switch. These switches complete the current path when both brakes are released and the throttle is not OFF (pushed clockwise). The cruise control unit has a 4th gear input and an overdrive (OD) input. The module must recognize a ground signal at its 4th gear or overdrive (OD) inputs to enter the cruise mode.

When the cruise ON switch is engaged, the cruise control unit grounds the cruise ON indicator control line and the cruise ON indicator lights. The system is activated when the unit receives a momentary voltage signal at its SET/DECEL input. The unit grounds the cruise SET indicator control line. It then looks at the speed signal outputs from the instrument panel and the engine speed from the ECM. It uses the ECM speed signal to control vehicle speed and the instrument panel speed signal to determine if the vehicle is above 30 mph and below 80 mph.

The cruise control unit maintains vehicle speed by energizing the cruise valve relay and grounding and opening its vacuum vent and valve control lines. Engine vacuum is then channeled through the cruise control valve unit to the cruise control actuator. The actuator pulls on the throttle linkage to increase vehicle speed. When the vehicle set speed is reached, the unit opens the vacuum valve control line and allows vacuum in the cruise control valve unit to hold the throttle linkage to maintain vehicle speed. If the unit detects vehicle speed increasing past the set speed, or if the SET/DECEL switch is held, the unit removes ground from the vent valve control circuit. Vacuum in the cruise control actuator is decreased, the throttle cable tension is relaxed, and the engine speed slows.

The cruise mode is disengaged by applying either brake, releasing the clutch, or moving the throttle to OFF. When either brake is applied, or if the throttle is moved to OFF, battery voltage is removed from the cancel input. This forces the unit to drop out of the cruise mode. There is also a redundant brake disable input to the cruise control unit. When the brake lights come on, battery voltage is applied to the cruise module to disengage the cruise control.

Troubleshooting

SYMPTOM	DIAGNOSIS
<ul style="list-style-type: none">• Cruise ON indicator does not light briefly when stop engine switch is first turned to RUN, but lights with cruise on.	<ul style="list-style-type: none">• BLU/ORN circuit open.• Faulty instrument panel.
<ul style="list-style-type: none">• Cruise SET indicator does not light briefly when stop engine switch is first turned to RUN, but lights with cruise set.	<ul style="list-style-type: none">• BLU/WHT circuit open.• Faulty instrument panel.
<ul style="list-style-type: none">• Any other cruise related symptom.	<ul style="list-style-type: none">• Perform Isolation Procedure.

(cont'd)

Cruise Control

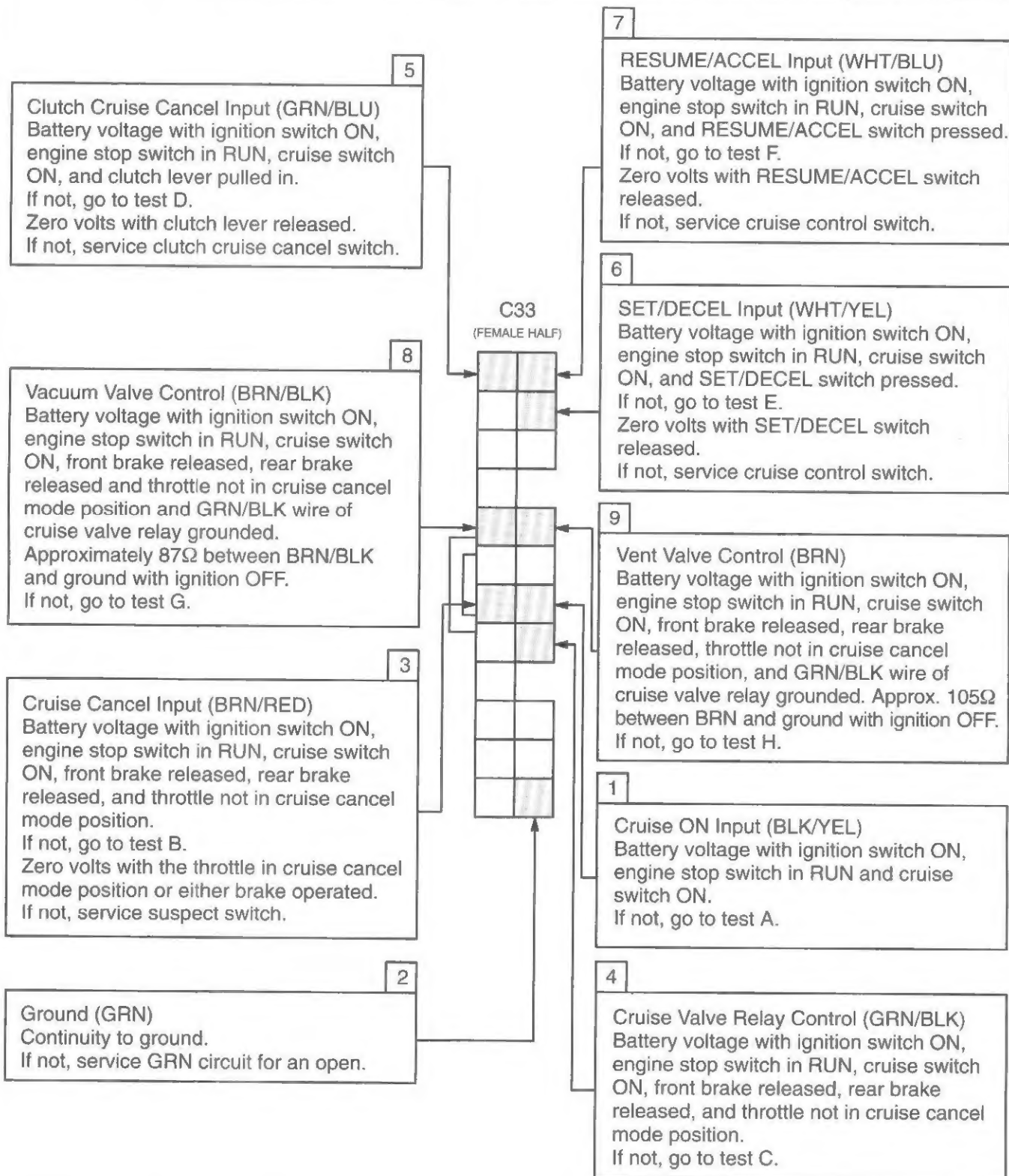
Troubleshooting (cont'd)

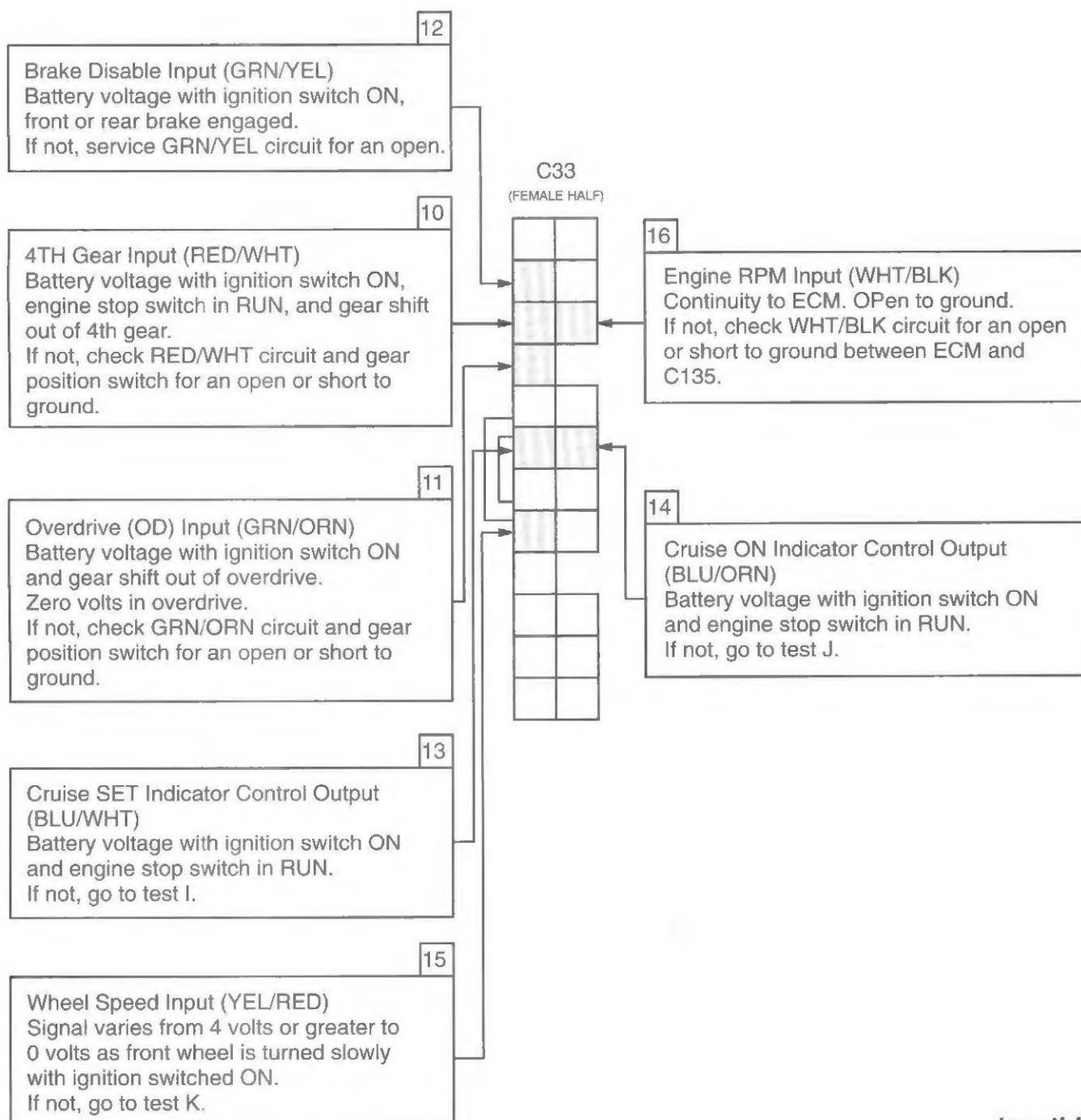
ISOLATION PROCEDURE

Note: Disconnect connector C33. Perform all checks in order.

If a result is incorrect, go to test referenced. If the result is correct, perform the next check.

Throttle is at the cruise cancel mode position when the throttle is turned clockwise past the rest position.





(cont'd)

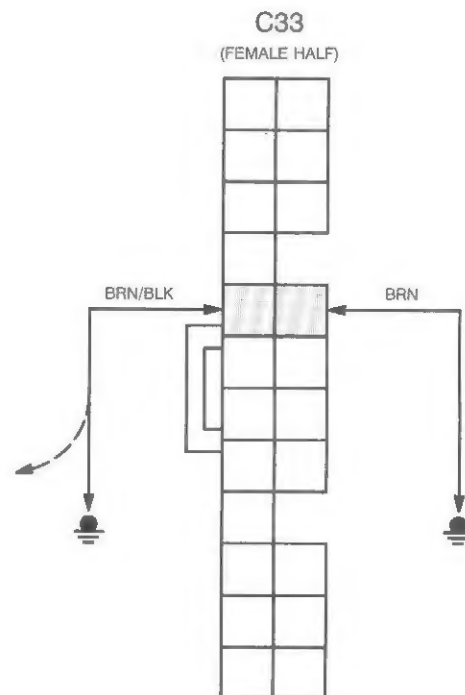
Cruise Control

Troubleshooting (cont'd)

ISOLATION PROCEDURE (cont'd)

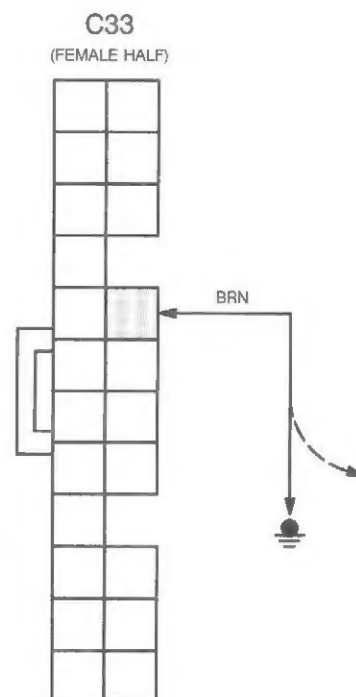
17

Start engine and allow to run for 30 seconds to allow vacuum to build in accumulator. Stop engine, put ignition switch ON, engine stop switch in RUN, and ground GRN/BLK wire of the cruise valve relay. Jumper BRN circuit to ground. Put cruise switch ON. Jumper BRN/BLK circuit to ground for about 3 seconds, then disconnect and observe if throttle turns and holds. If not, go to test L.



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With ignition switch ON, cruise switch ON, engine stop switch in RUN, and ground GRN/BLK wire of the cruise valve relay, remove jumper at BRN circuit while observing throttle. Cruise control actuator releases throttle. If not, go to test M.



Note: If all isolation checks are correct, check wires between cruise control unit and male half of C33 for opens or shorts to ground. If all circuits are OK, replace cruise control unit and road-test. If not OK, speed signal from ECM may be at fault.

Test A: Cruise Unit Power

1. Turn ignition switch ON and engine stop switch in RUN. Check for battery voltage at C138 WHT circuit. If yes, go to step 2. If no, service WHT circuit for an open.
2. With ignition switch OFF, connect an ohmmeter across BLK/YEL and WHT circuits at C138. Check for continuity with cruise switch ON. If yes, service BLK/YEL circuit for an open between C33 and right combination switch. If no, replace right combination switch.

Test B: Cruise Unit Cancel Input Test

1. Disconnect C132 (throttle cancel switch). Turn ignition and cruise switches ON and the engine stop switch to RUN. With front brake released, check for battery voltage at GRN/WHT circuit. If yes, go to step 2. If no, check front brake light/cruise cancel switch, BLK/BLU and GRN/WHT circuits for an open between C132 and C138. Replace/repair as necessary.
2. Reconnect C132 and disconnect C133 (rear cruise brake cancel switch). Turn ignition and cruise switches and the engine stop switch to RUN. With front brake and throttle released, check for battery voltage at GRN/WHT circuit. If yes, check rear brake cruise cancel switch and BRN/RED circuit for an open between C133 and cruise control unit. Replace/repair as necessary. If no, check throttle cancel switch and GRN/WHT circuit for an open between throttle cancel switch and rear brake cruise cancel switch. Replace/repair as necessary.

Test C: Cruise Relay Valve Input Test

1. Disconnect cruise valve relay connector. Turn the ignition and cruise switches ON and the engine stop switch to RUN. Release front and rear brakes and release throttle. Check for battery voltage at BRN/RED coil circuit. If yes, check relay for an open coil and GRN/BLK circuit for an open between cruise valve relay and C33. Replace/repair as necessary. If no, service BRN/RED circuit for an open.

Test D: Clutch Cancel Input Test

1. Disconnect C323 (clutch cruise cancel switch). Turn the ignition and cruise switches ON, and the engine stop switch to RUN. Check for battery voltage at BLK/YEL circuit. If yes, check clutch cruise cancel switch and GRN/BLU circuit for an open between C323 and C33. Replace/repair as necessary. If no, service BLK/YEL circuit for an open.

(cont'd)

Cruise Control

Troubleshooting (cont'd)

Test E: SET/DECEL Switch Continuity Check

1. Connect ohmmeter across WHT and WHT/YEL circuits at C138. Check for continuity with the cruise switch ON and SET/DECEL switch held on.
If yes, service WHT/YEL circuit for an open between C138 and C33.
If no, replace the cruise control switch.

Test F: RESUME/ACCEL Switch Continuity Check

1. Connect ohmmeter across WHT and WHT/BLU circuits at C138. Check for continuity with the cruise switch ON and RESUME/ACCEL switch held on.
If yes, service WHT/BLU circuit for an open between C138 and C33.
If no, replace the cruise control switch.

Test G: Vacuum Valve Control Check

1. Disconnect C131 (cruise control vent valve unit). Turn ignition and cruise switches ON and engine stop switch in RUN and ground the GRN/BLK wire at the cruise valve relay. Release throttle and both brakes. Check for battery voltage at BRN/WHT circuit.
If yes, go to step 4.
If no, go to step 2.
2. Disconnect cruise valve relay connector. Check for battery voltage at BRN/RED circuits.
If yes, go to step 3.
If no, service BRN/RED circuit for an open between cruise valve relay and rear brake cruise cancel switch.
3. Check for continuity at BRN/WHT circuit between C131 (cruise valve control unit) and cruise valve relay.
If yes, replace cruise valve relay.
If no, service BRN/WHT wire for an open.
4. Check continuity to ground at C131 GRN circuit.
If yes, go to step 5.
If no, service BRN/WHT wire for an open.
5. With C131 disconnected, check continuity between BRN/WHT and BRN/BLK circuits at cruise control valve side of C131.
If yes, service BRN/BLK circuit for an open between C33 and C131.
If no, replace cruise control valve unit.

Test H: Vent Valve Continuity Check

1. Disconnect C131 (cruise control valve unit) and check continuity between BRN/WHT and BRN circuits at cruise control valve side of C131.
If yes, service BRN circuit for an open between C33 and C131.
If no, replace cruise control valve unit.

Test I: Cruise SET Indicator Control Test

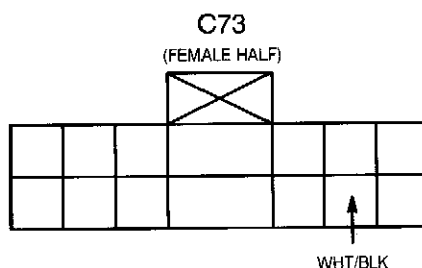
1. Put engine stop switch in RUN and turn ignition ON. Check that cruise SET indicator lights briefly.
If yes, service BLU/WHT circuit between instrument panel and cruise control unit.
If no, go to step 2.
2. Disconnect C66 (instrument panel). Turn ignition ON and put engine stop switch in RUN.
Check for battery voltage at WHT circuit.
If yes, go to step 3.
If no, service WHT circuit for an open.
3. Connect ohmmeter between WHT and BLU/WHT circuits at instrument panel half of C66.
Check for continuity.
If yes, check BLU/WHT circuit for an open between C66 and C33.
If no, check bulb, WHT circuit, and BLU/WHT circuit for an open. Replace/repair as necessary.

Test J: Cruise ON Indicator Control Test

1. Put engine stop switch in RUN and turn ignition ON. Check that cruise ON indicator lights briefly.
If yes, service BLU/ORN circuit between instrument panel and cruise control unit.
If no, go to step 2.
2. Disconnect C66 (instrument panel). Turn ignition ON and engine stop switch in RUN.
Check for battery voltage at WHT circuit.
If yes, go to step 3.
If no, service WHT circuit for an open.
3. Connect ohmmeter between WHT and BLU/ORN circuits at instrument panel half C66.
Check for continuity.
If yes, check BLU/ORN circuit for an open between C66 and C33.
If no, check bulb, WHT circuit, and BLU/ORN circuit for an open. Replace/repair as necessary.

Test K: Speed Signal Input Test

1. Disconnect C73. With ignition switch ON, check for about 5 to 10 volts at WHT/BLK circuit.



If yes, check WHT/BLK and YEL/RED circuit for an open or WHT/BLK wire between C73 & instrument panel for an open.
If no, go to step 2.

(cont'd)

Cruise Control

Troubleshooting (cont'd)

Test K: Speed Signal Input Test (cont'd)

2. Turn ignition OFF and connect ohmmeter to YEL/RED circuit at the female half of C33. Check for a short to ground.
If yes, go to next step.
If no, go to step 5.
3. With ohmmeter connected from previous step, disconnect C99 (turn signal cancel control unit) and check again for the short to ground.
If yes, go to step 4.
If no, service turn signal cancel control unit for a short to ground.
4. With ohmmeter connected from previous step, disconnect radio/cassette player connector C1 and check again for the short to ground.
If yes, service the WHT/BLK and YEL/RED circuit for a short to ground.
If no, service radio/cassette player for a short to ground.
5. With ohmmeter connected from previous step, check the male half of C33 for a short to ground.
If yes, service the YEL/RED circuit for a short to ground.
If no, replace the cruise control unit.

Test L: Cruise Control Actuator Vacuum Input Test

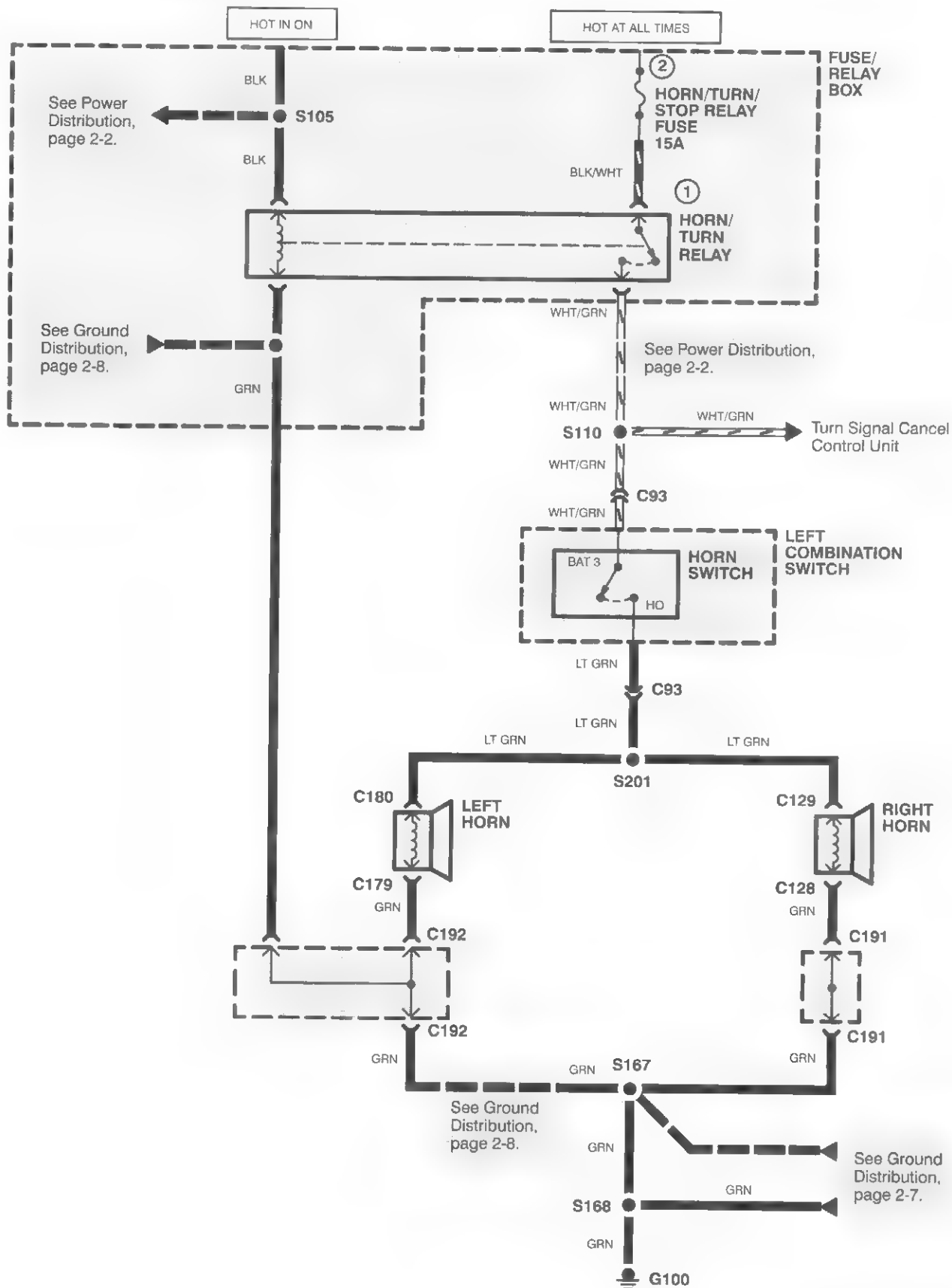
1. Connect vacuum gauge at source to cruise control valve unit. Start engine and check for vacuum.
If yes, go to step 2.
If no, service vacuum line system for a blockage or leak.
2. Stop engine and connect vacuum pump to cruise control actuator. Operate vacuum pump and check that the throttle turns, holds, and releases as vacuum is applied, maintained, and released.
If yes, go to step 3.
If no, check vacuum line to cruise control actuator for blockage or leaks. Replace/repair as necessary.
3. Disconnect C131 and check for continuity to ground at GRN circuit.
If yes, replace cruise control valve unit.
If no, service GRN circuit for an open.

Test M: Cruise Control Actuator Vent Input Test

1. Connect vacuum pump to vacuum source line of cruise control valve unit. Jumper BRN circuit to ground. Jumper GRN circuit to ground. Jumper BRN/BLK circuit to ground. Jumper BRN/WHT circuit to battery voltage. Operate vacuum pump and allow time for cruise control actuator to pull throttle cable. Disconnect jumper at BRN/BLK circuit. Cable actuator should hold throttle cable. Disconnect jumper at BRN circuit. Cable actuator should release throttle. If yes, check BRN circuit for high resistance between C33 and C131.
If no, replace cruise control valve unit.

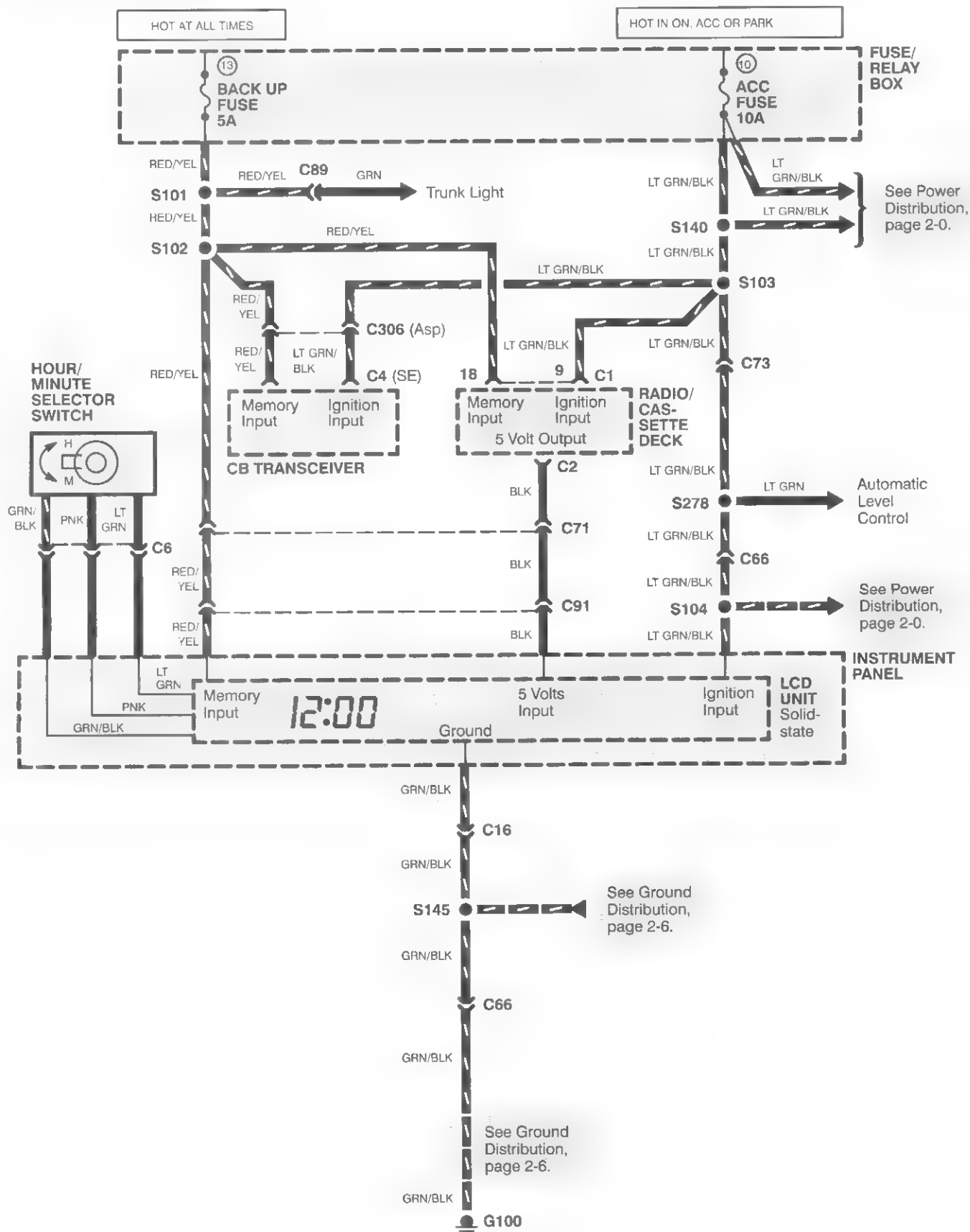
Horn

Circuit Schematic



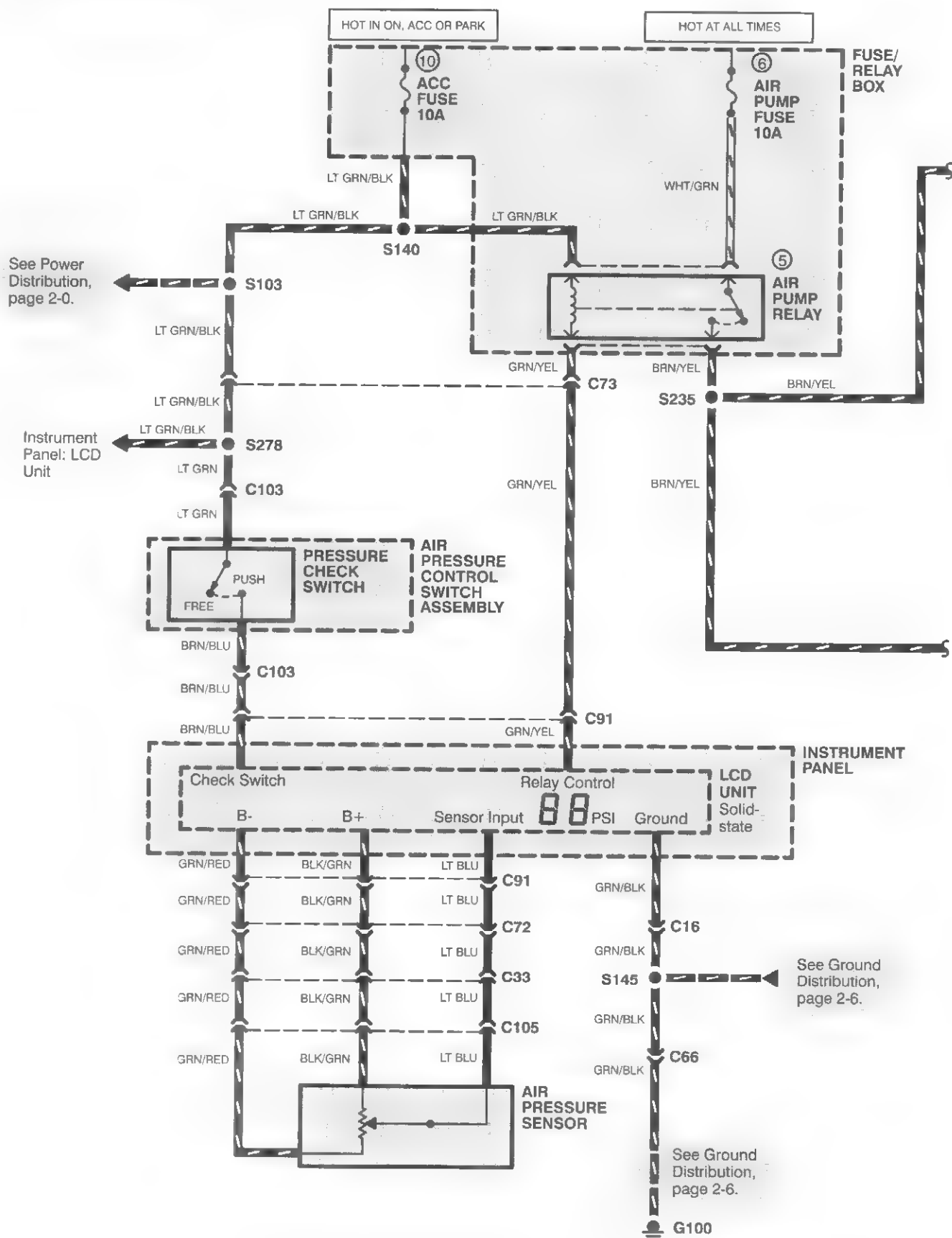
Clock

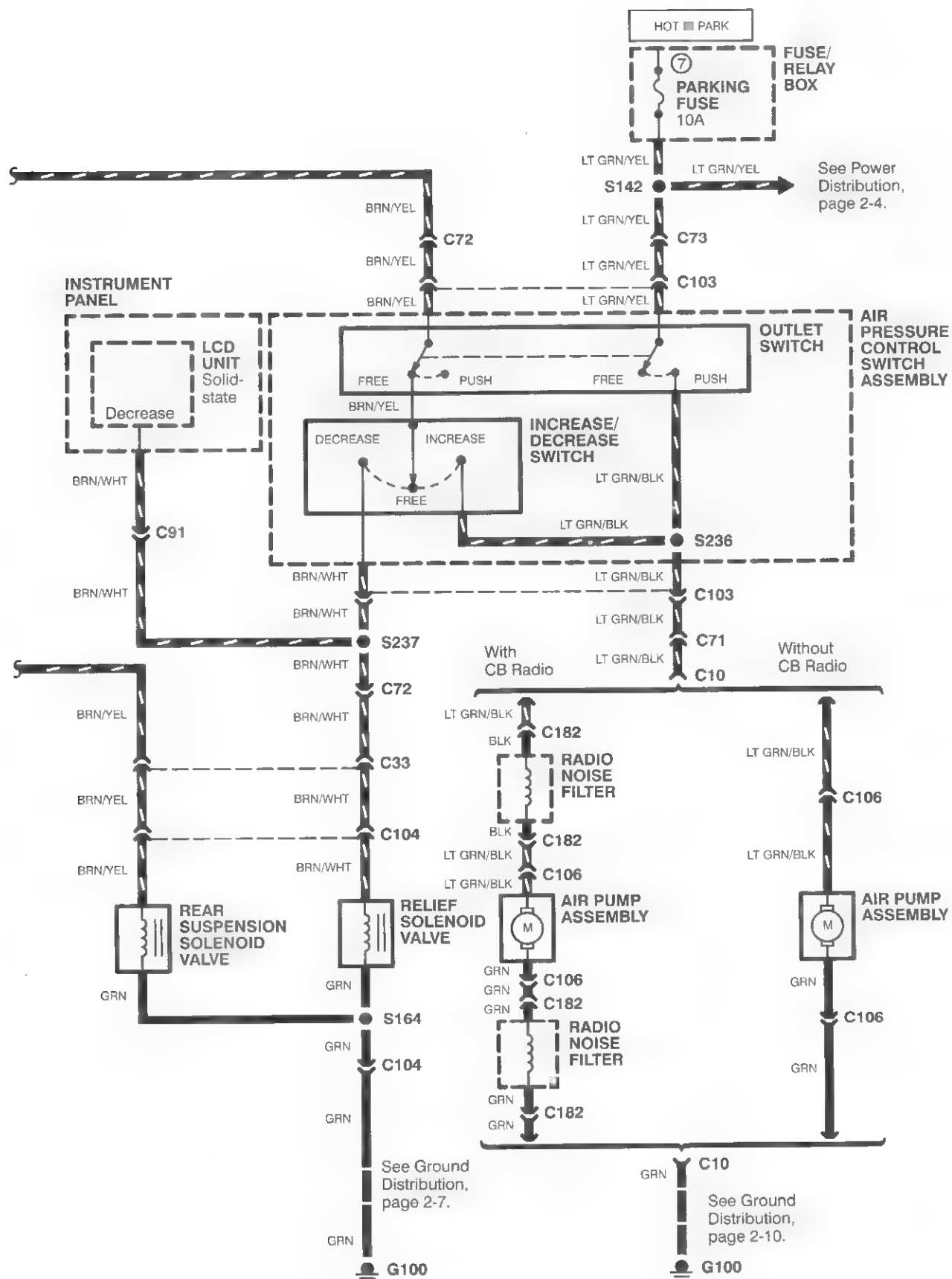
Circuit Schematic



Automatic Level Control

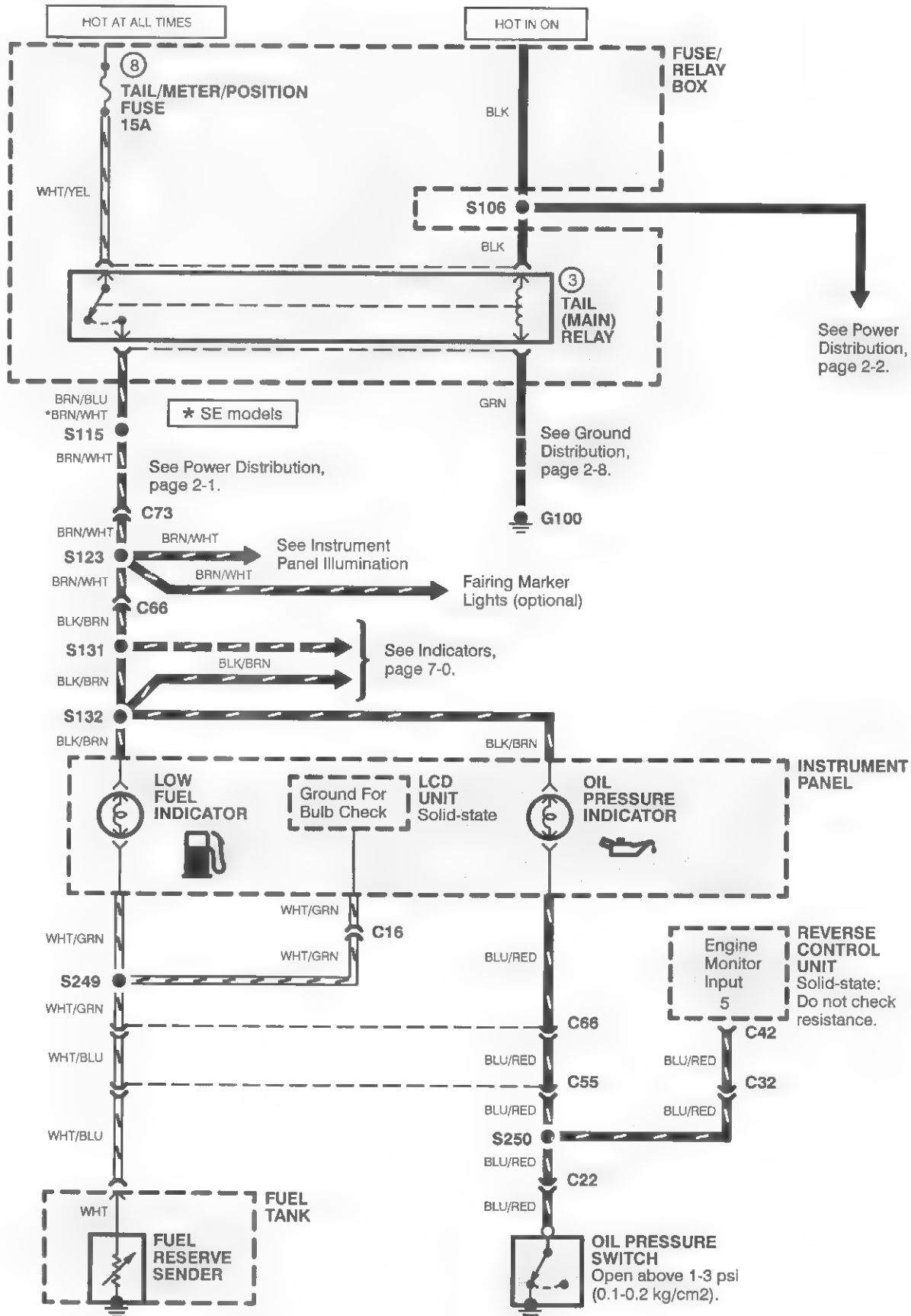
Circuit Schematic





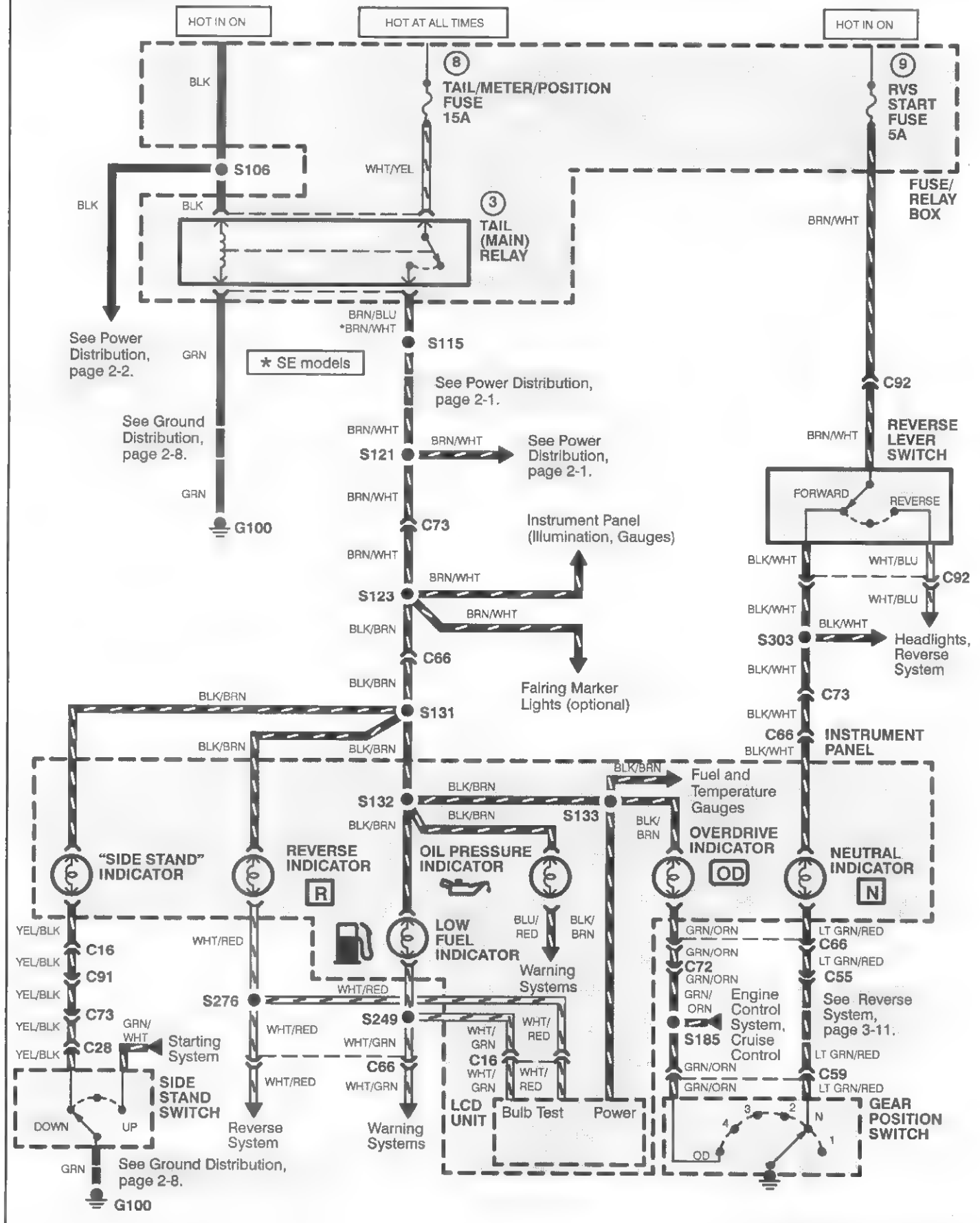
Low Fuel and Oil Pressure Warning System

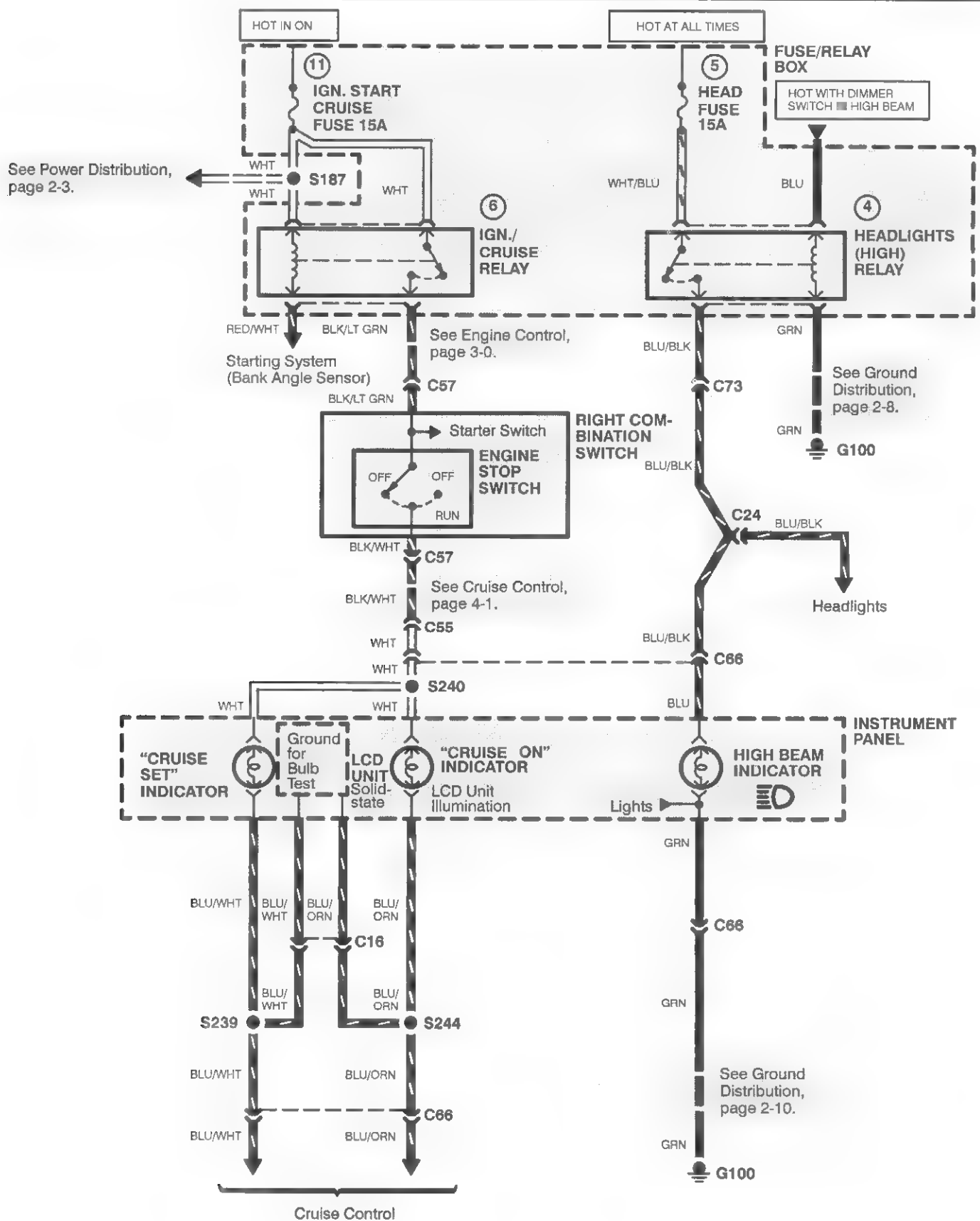
Circuit Schematic



Indicators

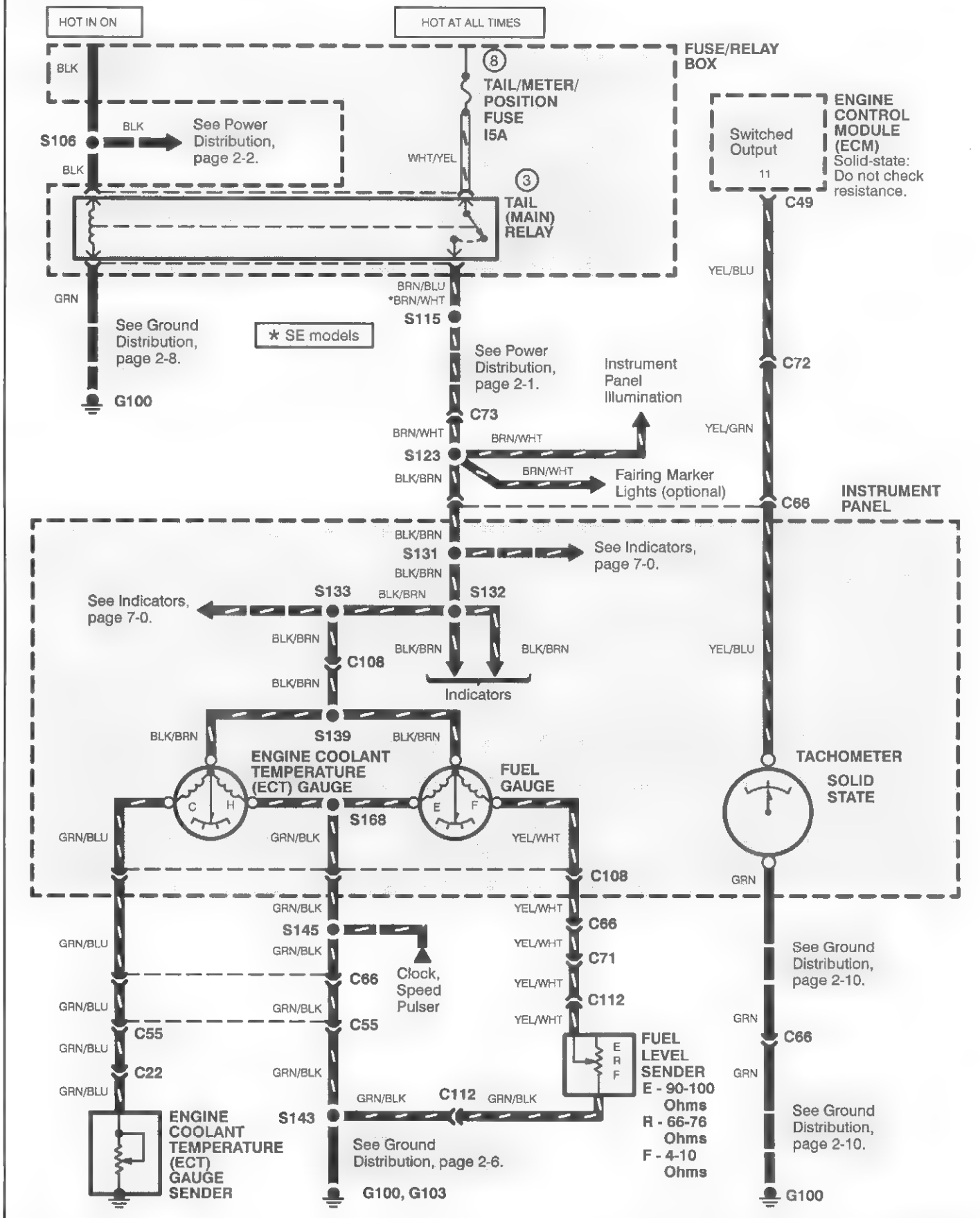
Circuit Schematic

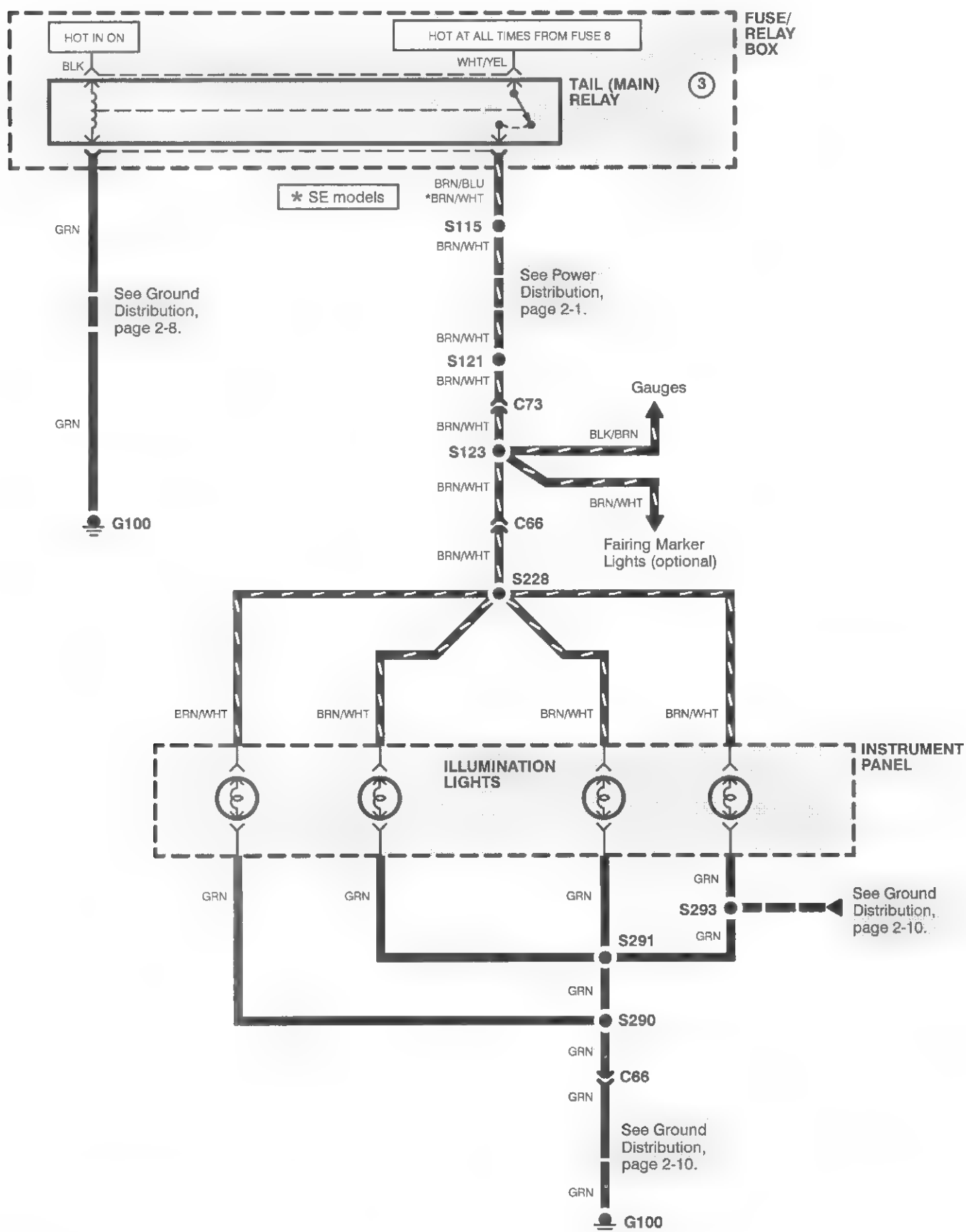




Instrument Panel: Gauges, Illumination Lights

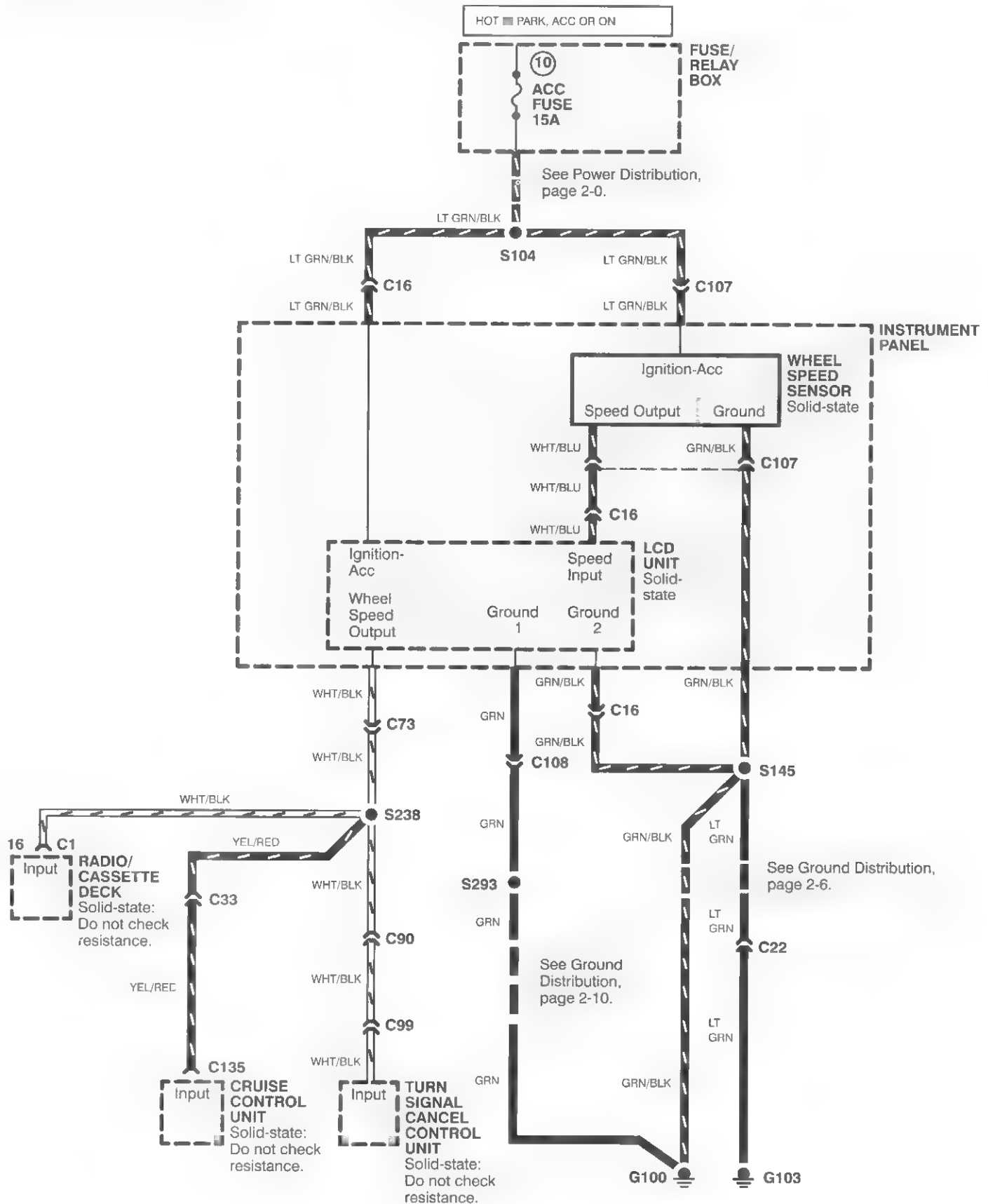
Circuit Schematic





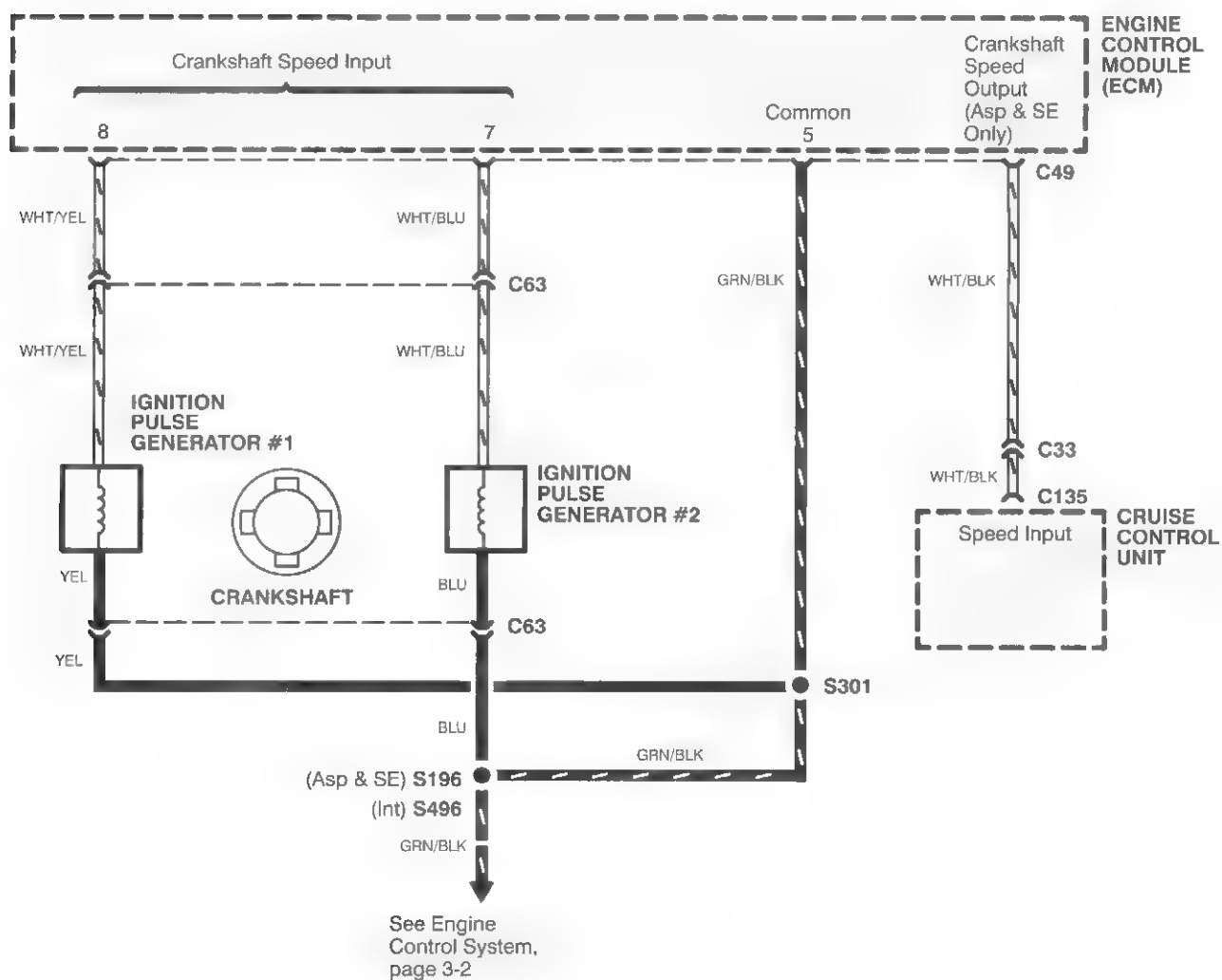
Speed Sensor Circuit (Wheel Speed)

Circuit Schematic



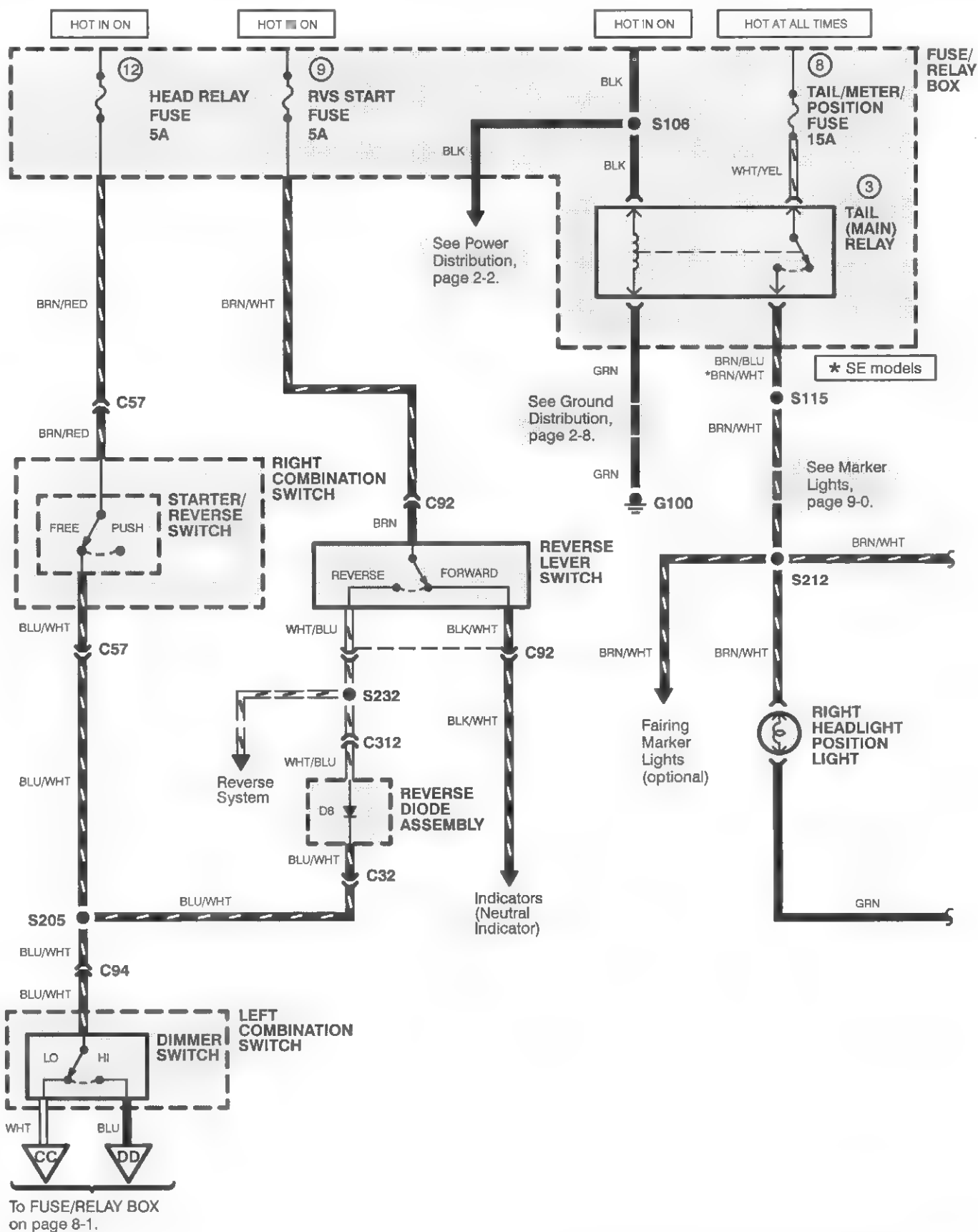
(Crankshaft Speed)

Note: For Ignition, Battery and Grounding details of the Engine Control Module (ECM), see page 3-0



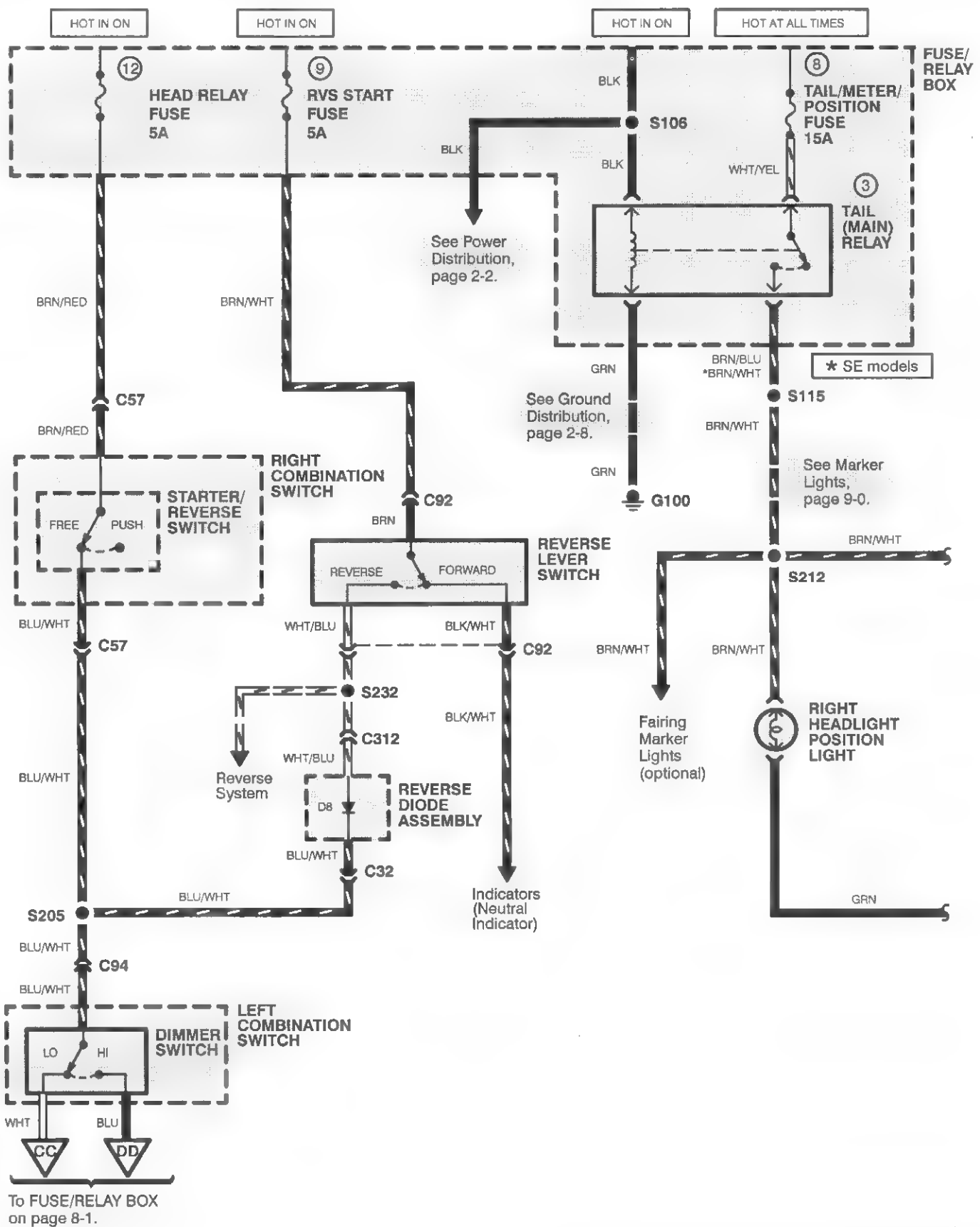
Headlights

Circuit Schematic



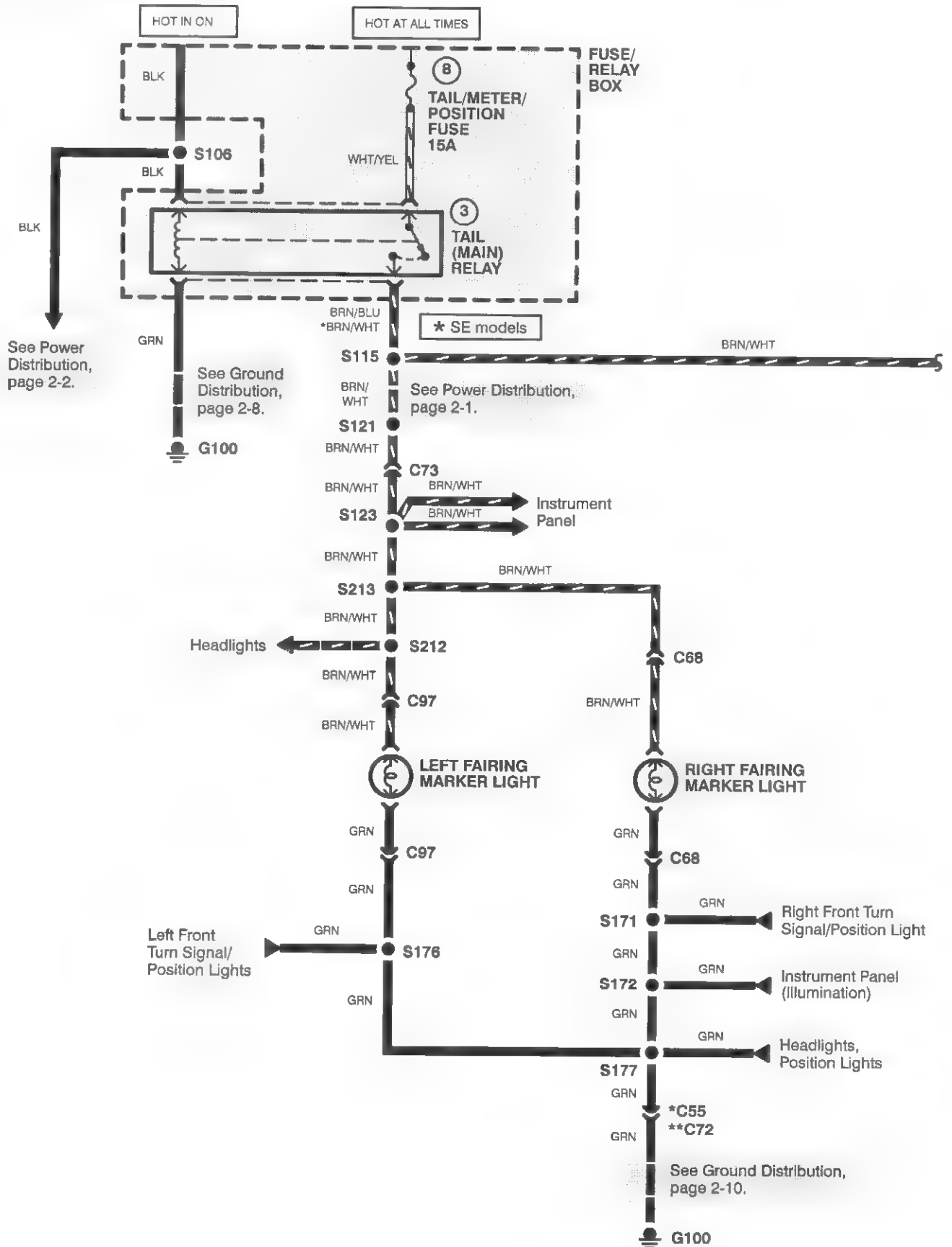
Headlights

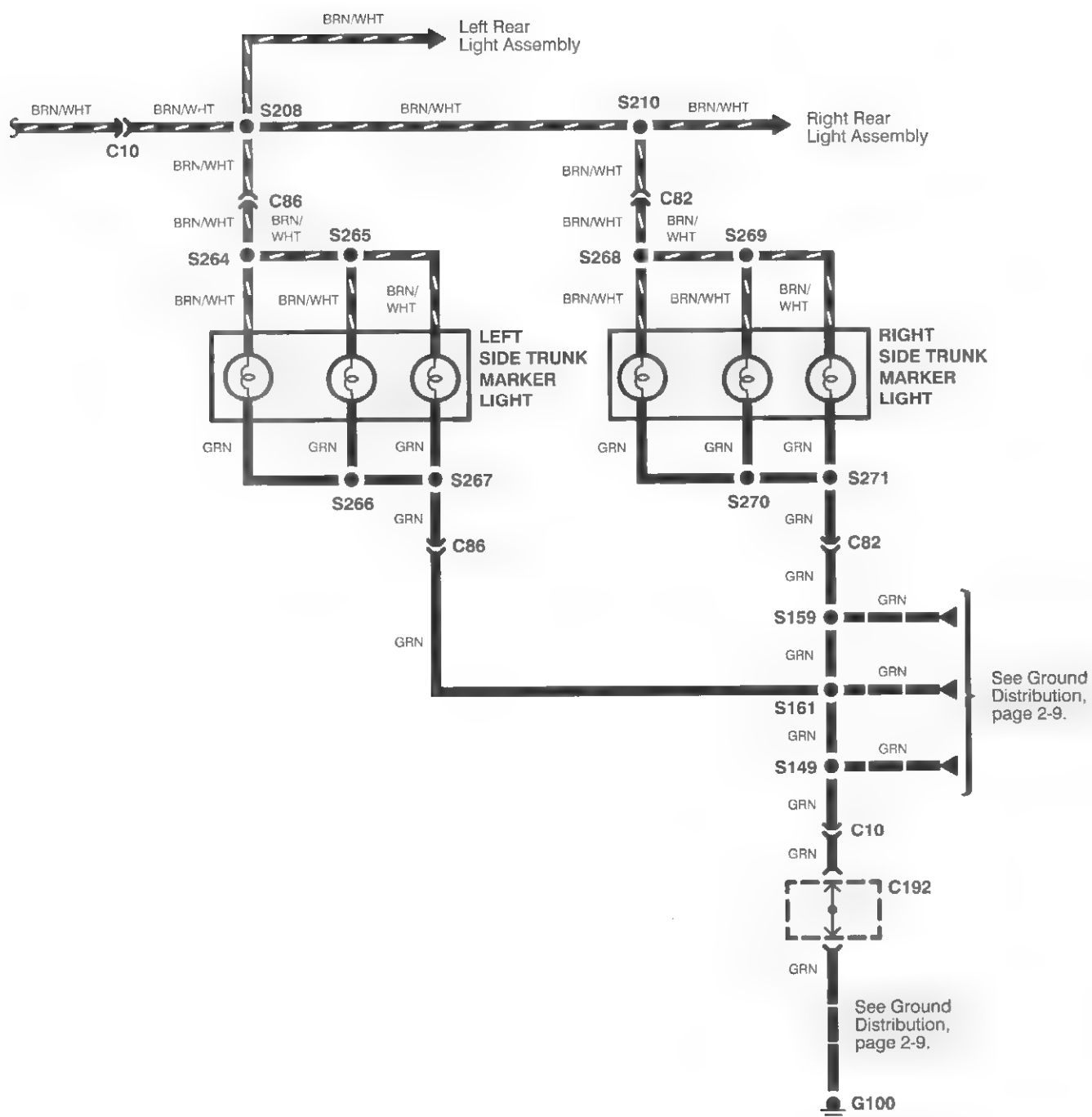
Circuit Schematic



Marker Lights: Fairing and Trunk (Optional)

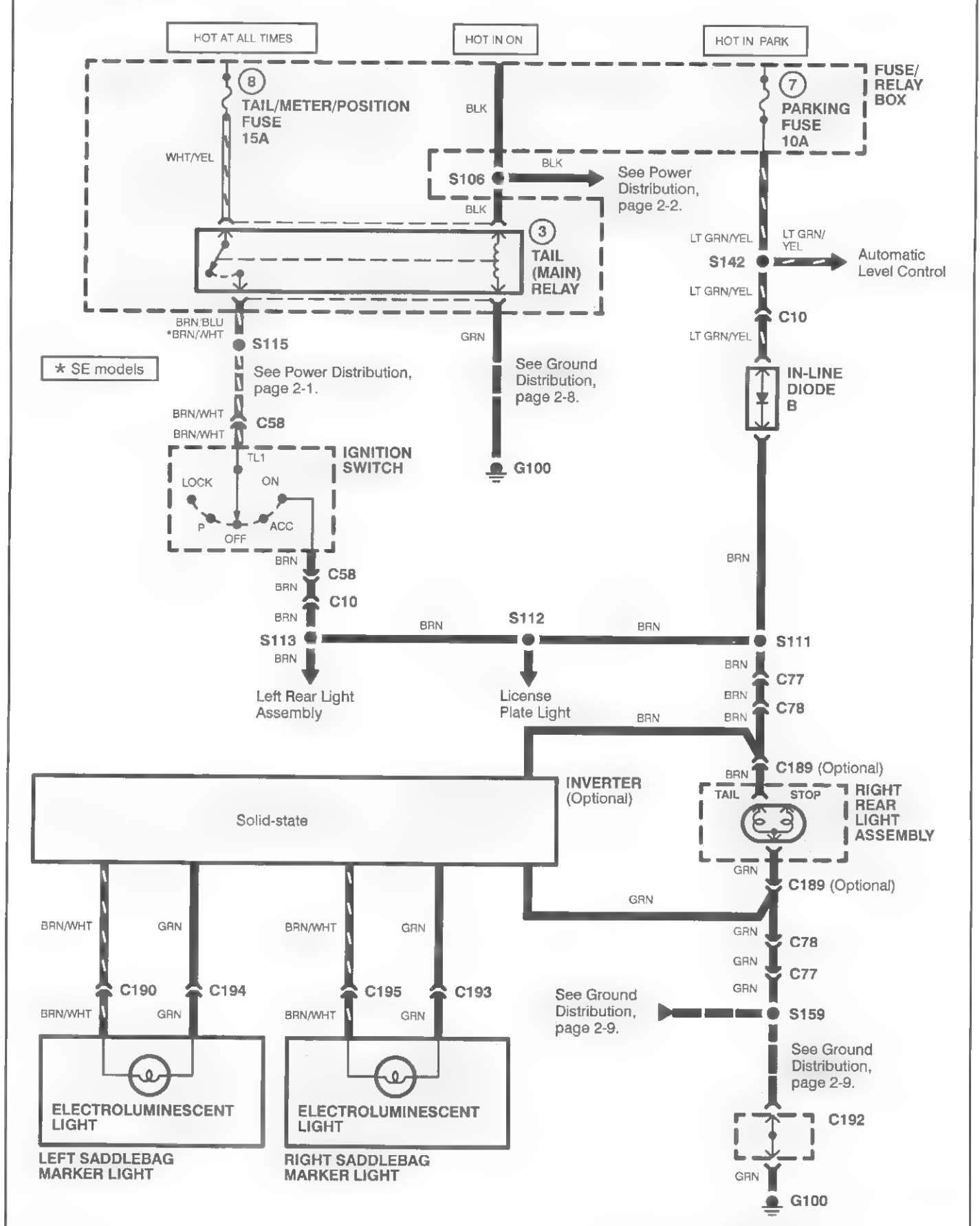
Circuit Schematic





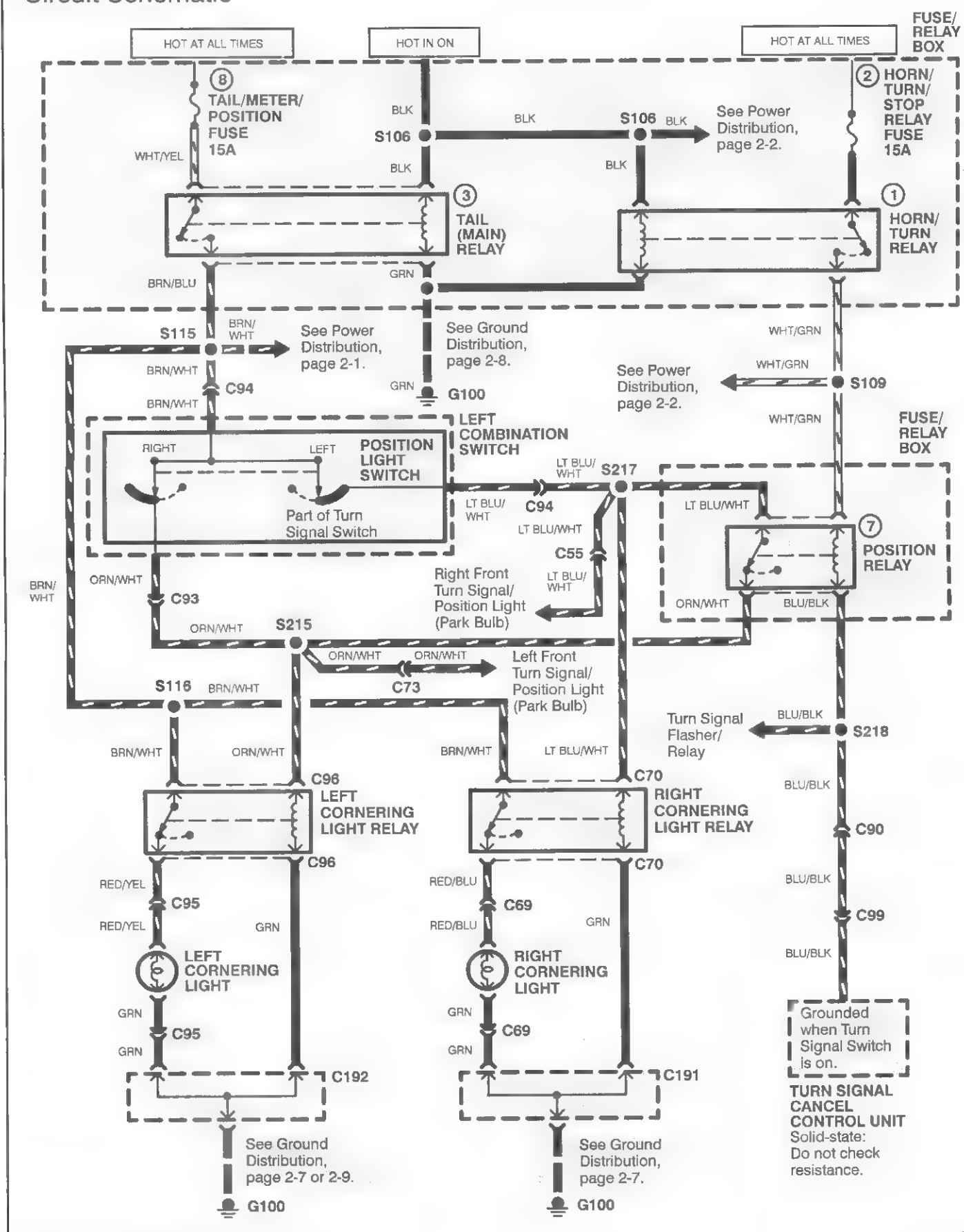
Marker Lights: Saddlebags

Circuit Schematic



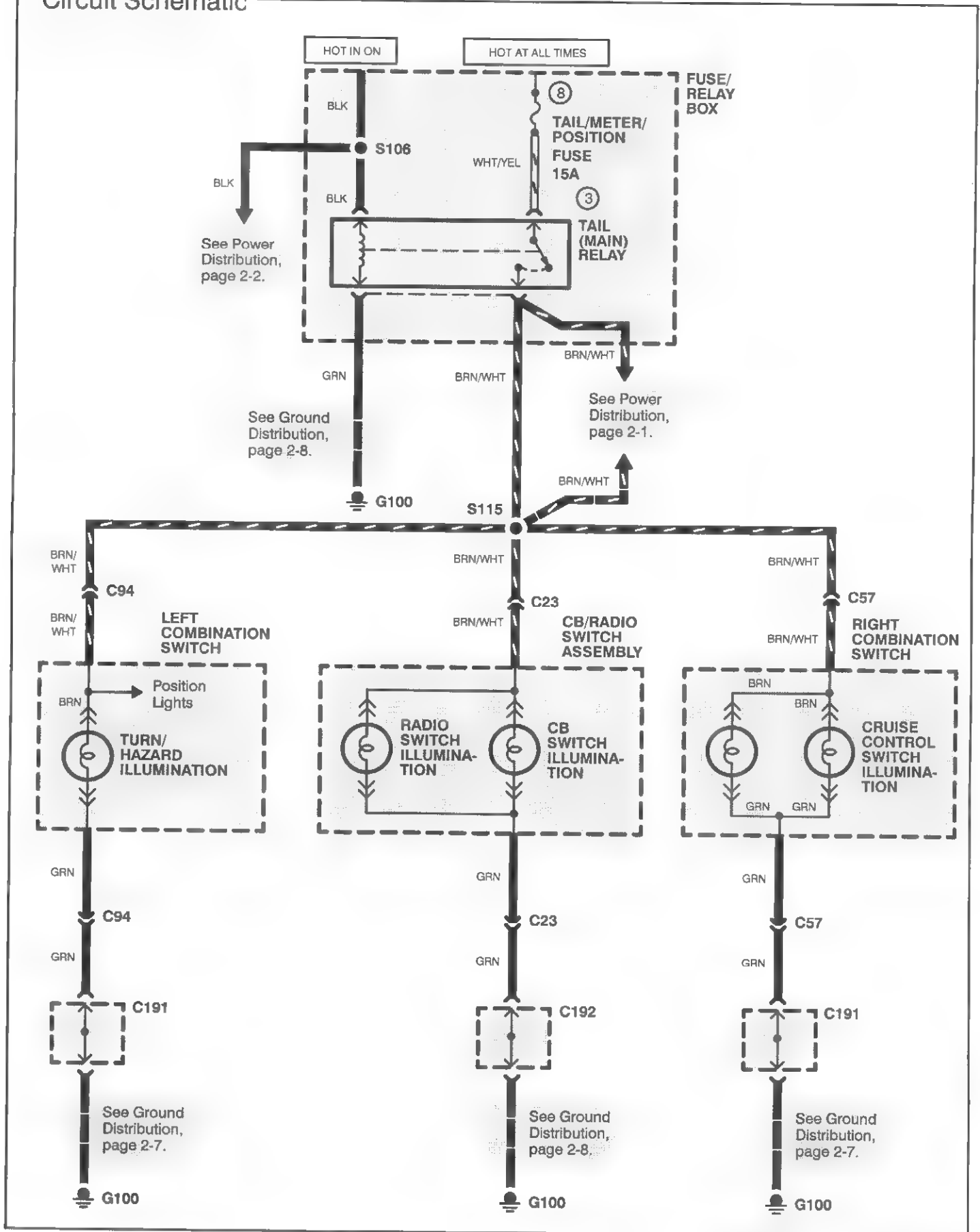
Cornering Lights: Asp Only

Circuit Schematic



Handlebar Switch Illumination: SE Only

Circuit Schematic

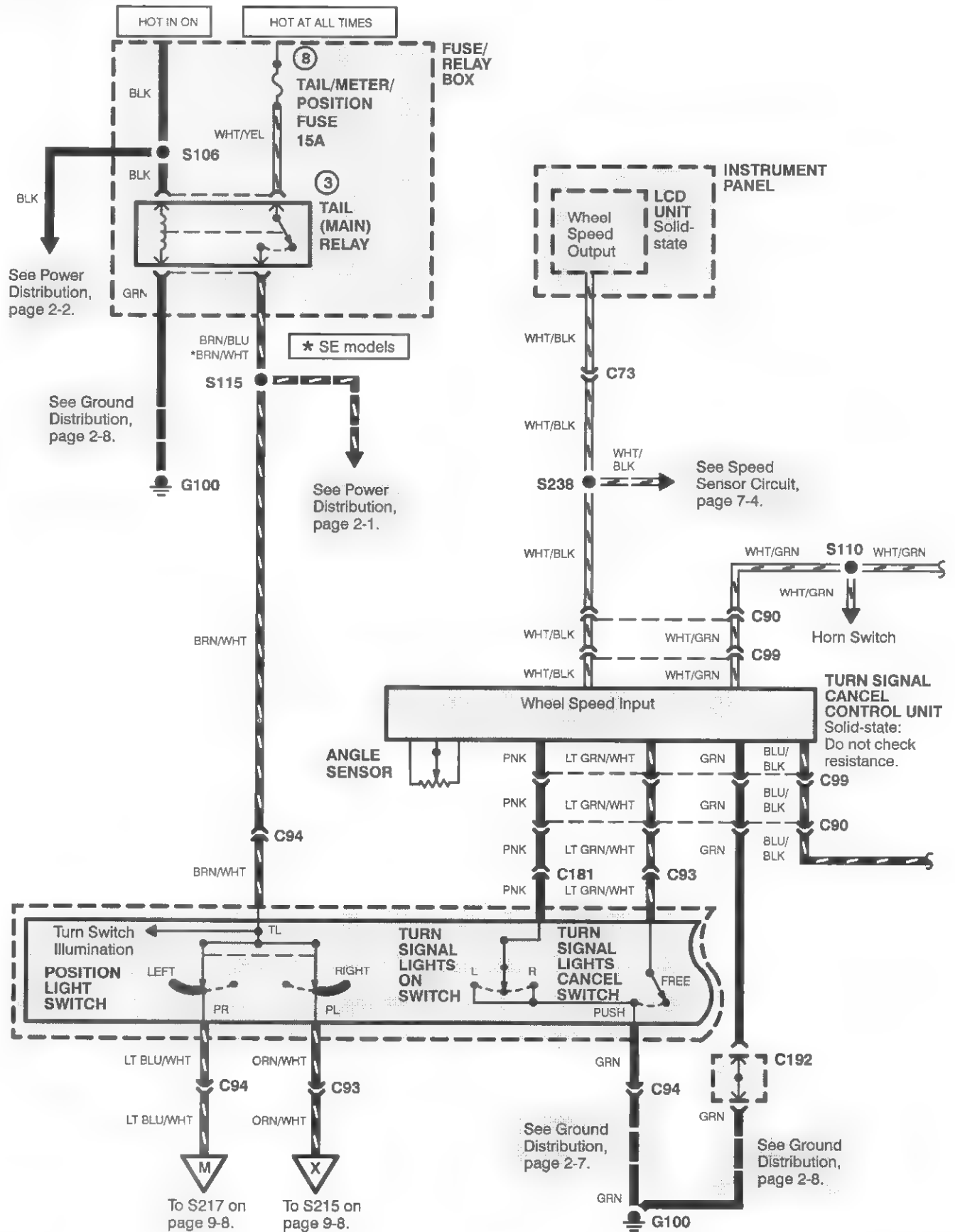


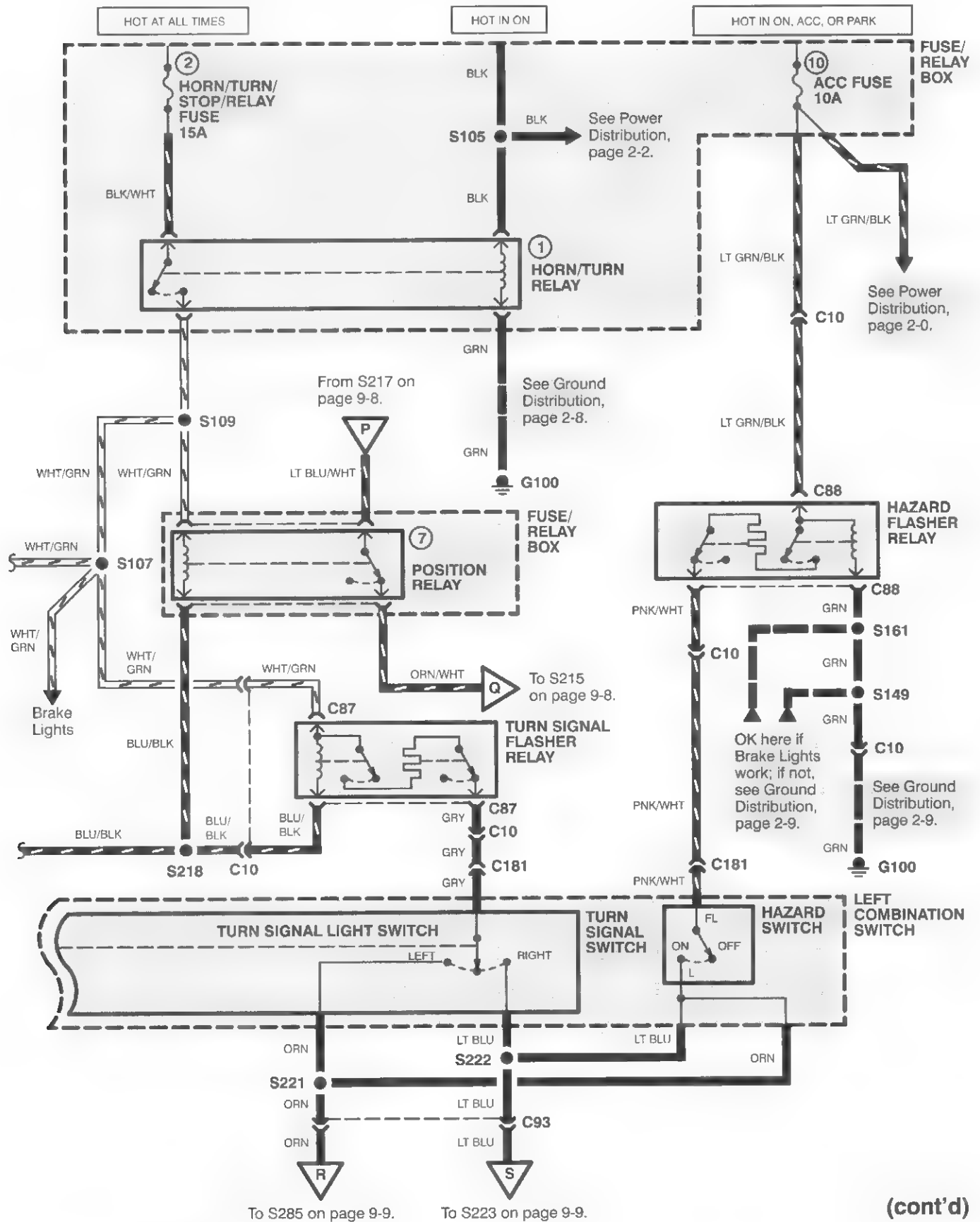
Circuit Schematic



Turn Signal, Hazard, and Position Lights

Circuit Schematic

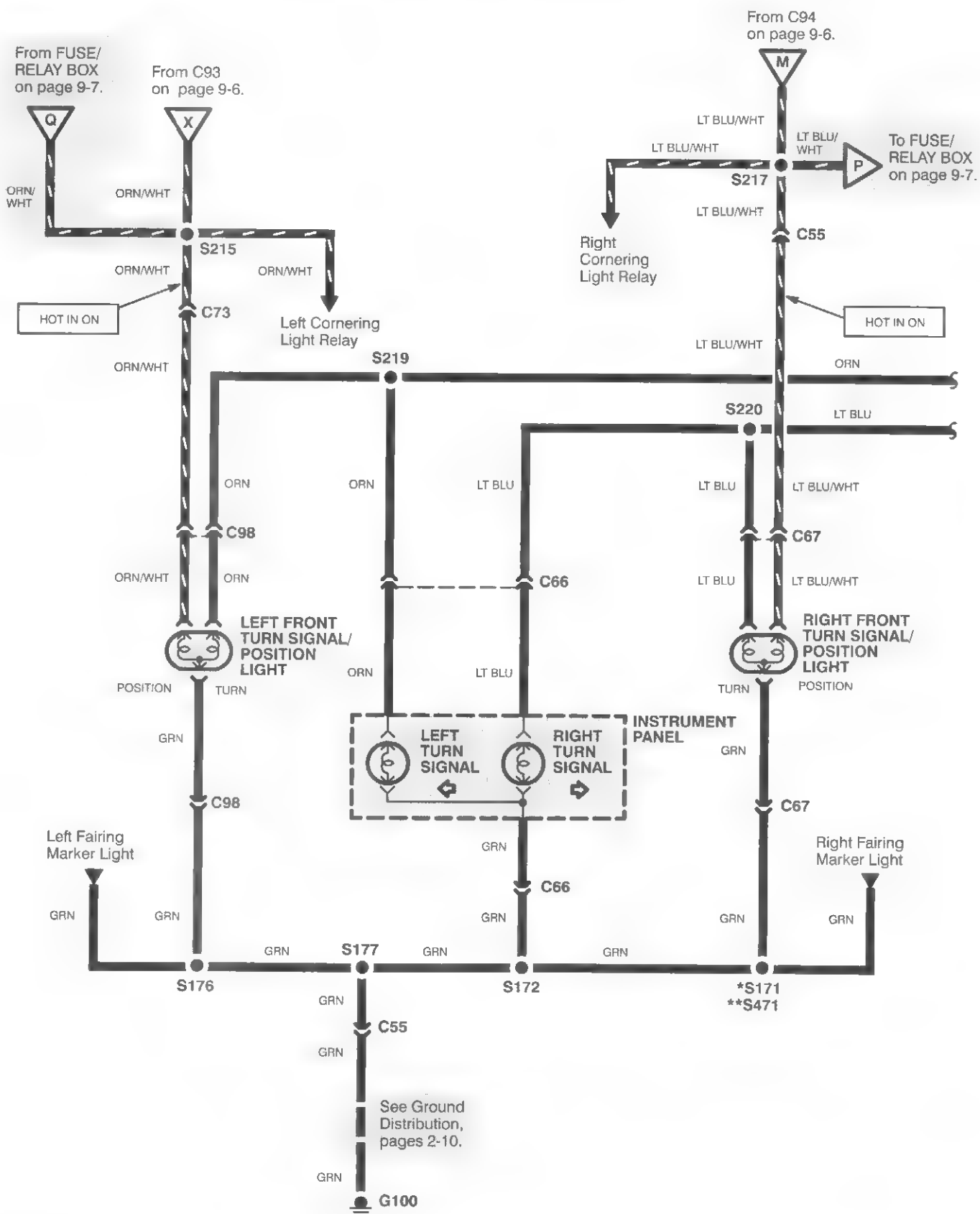


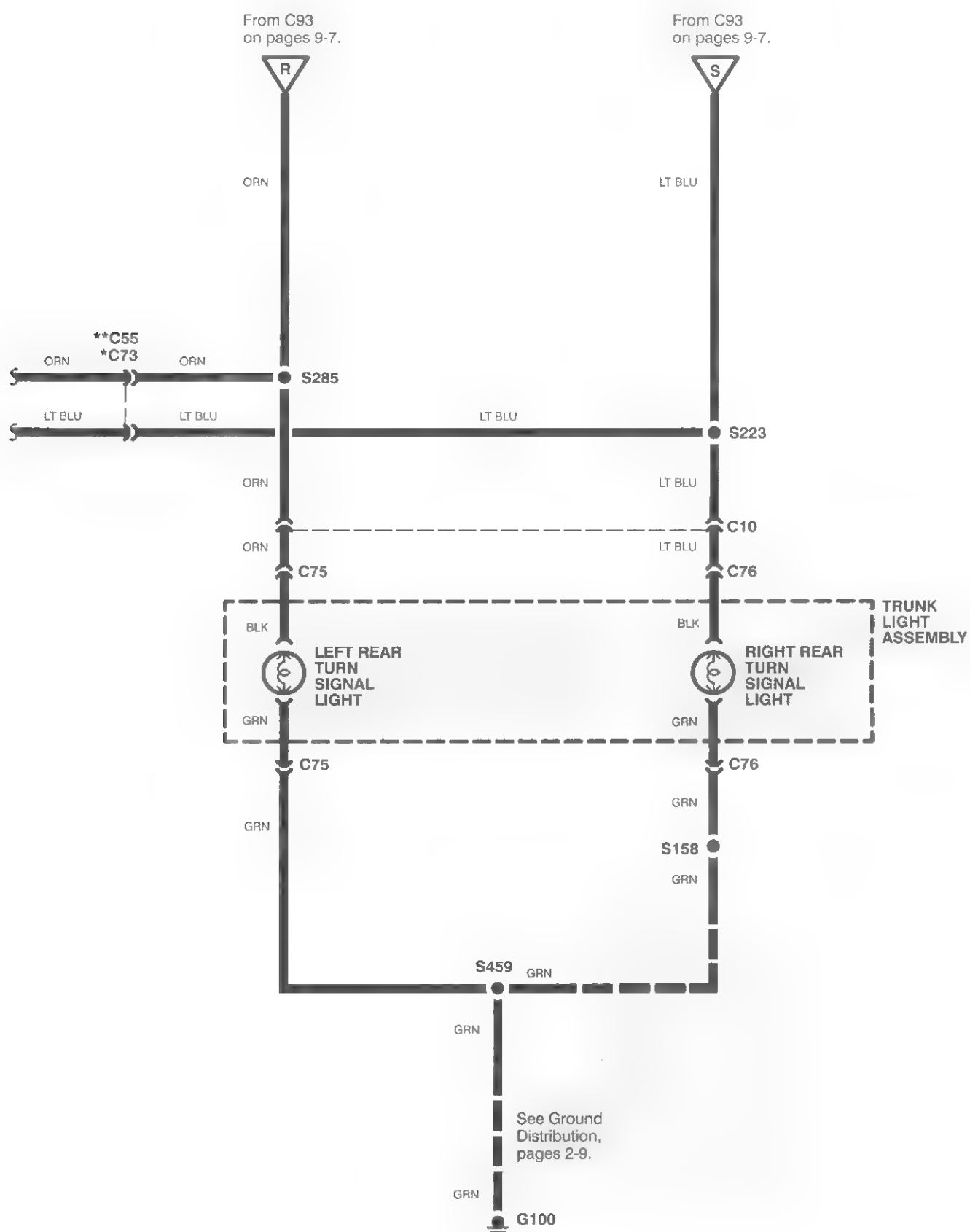


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Turn Signal, Hazard and Position Lights

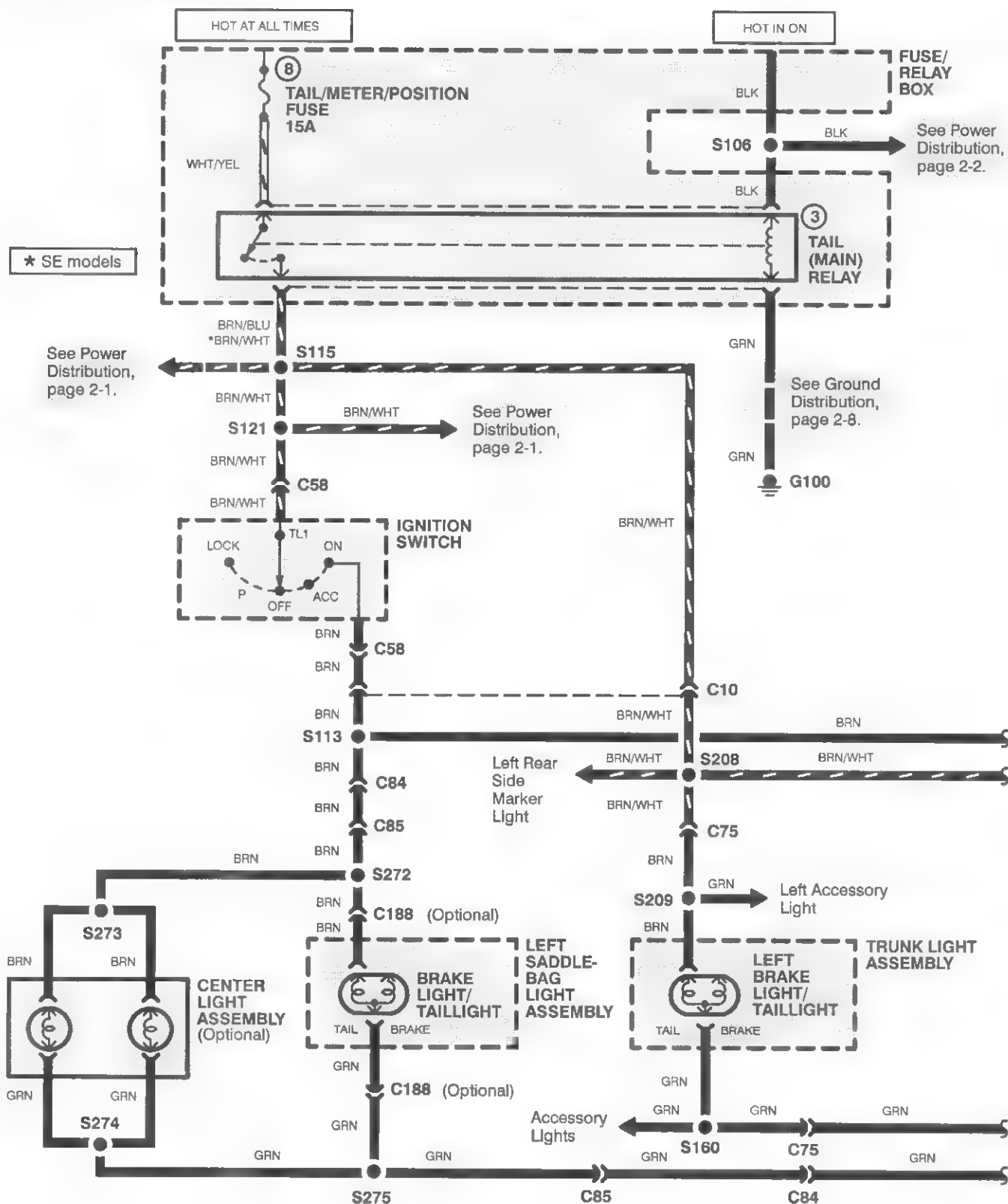
Circuit Schematic (cont'd)

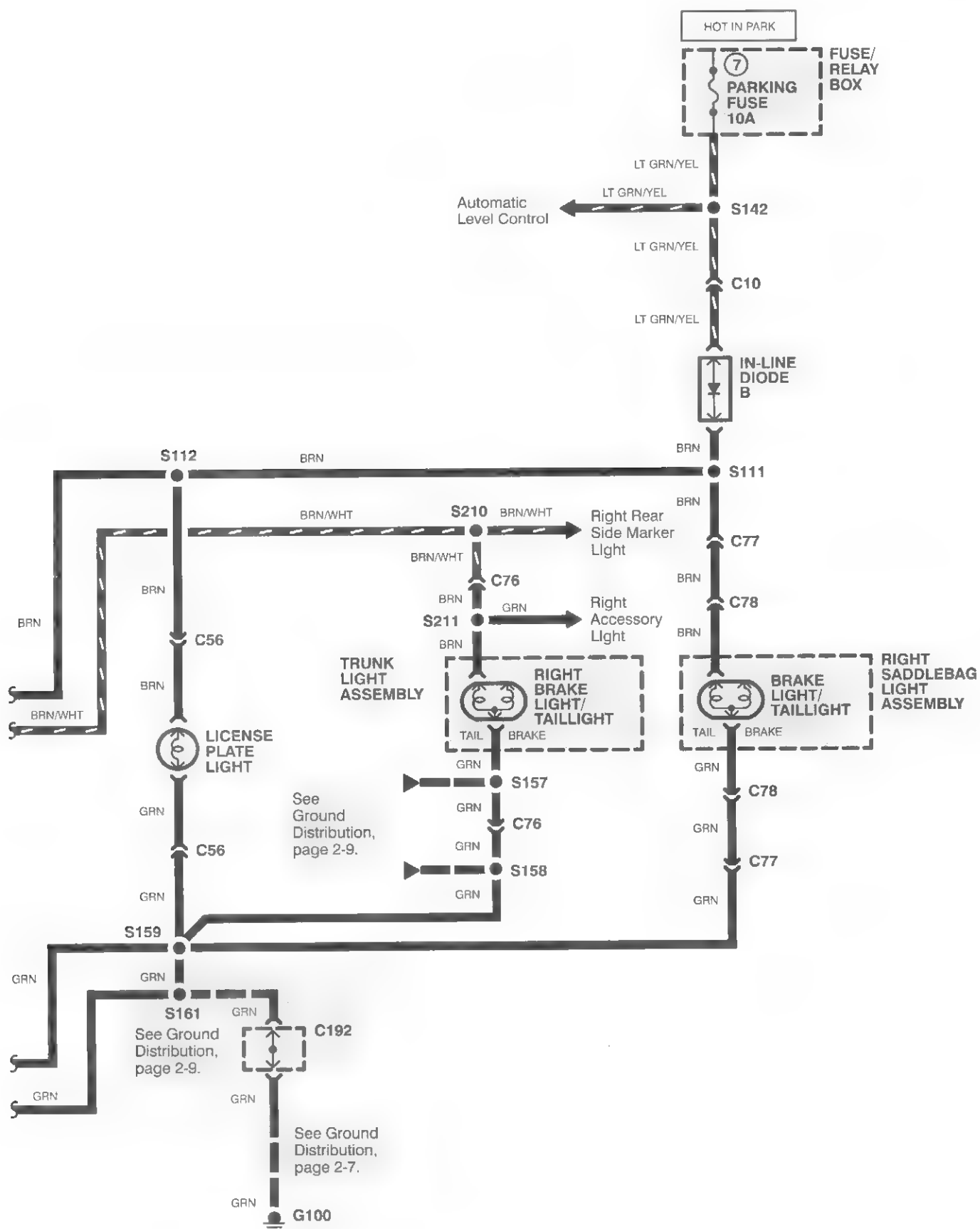




Tail, Parking, and License Plate Lights

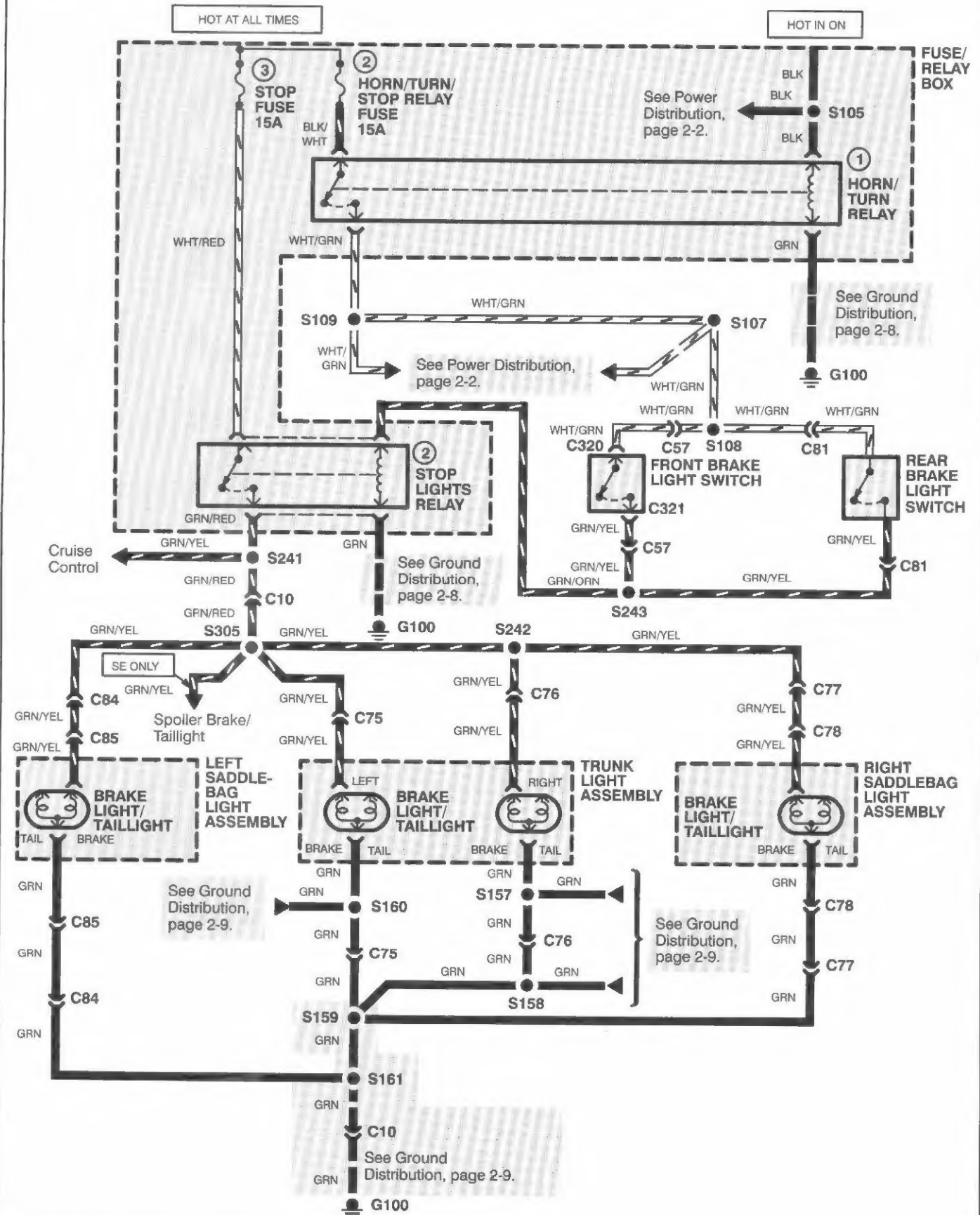
Circuit Schematic





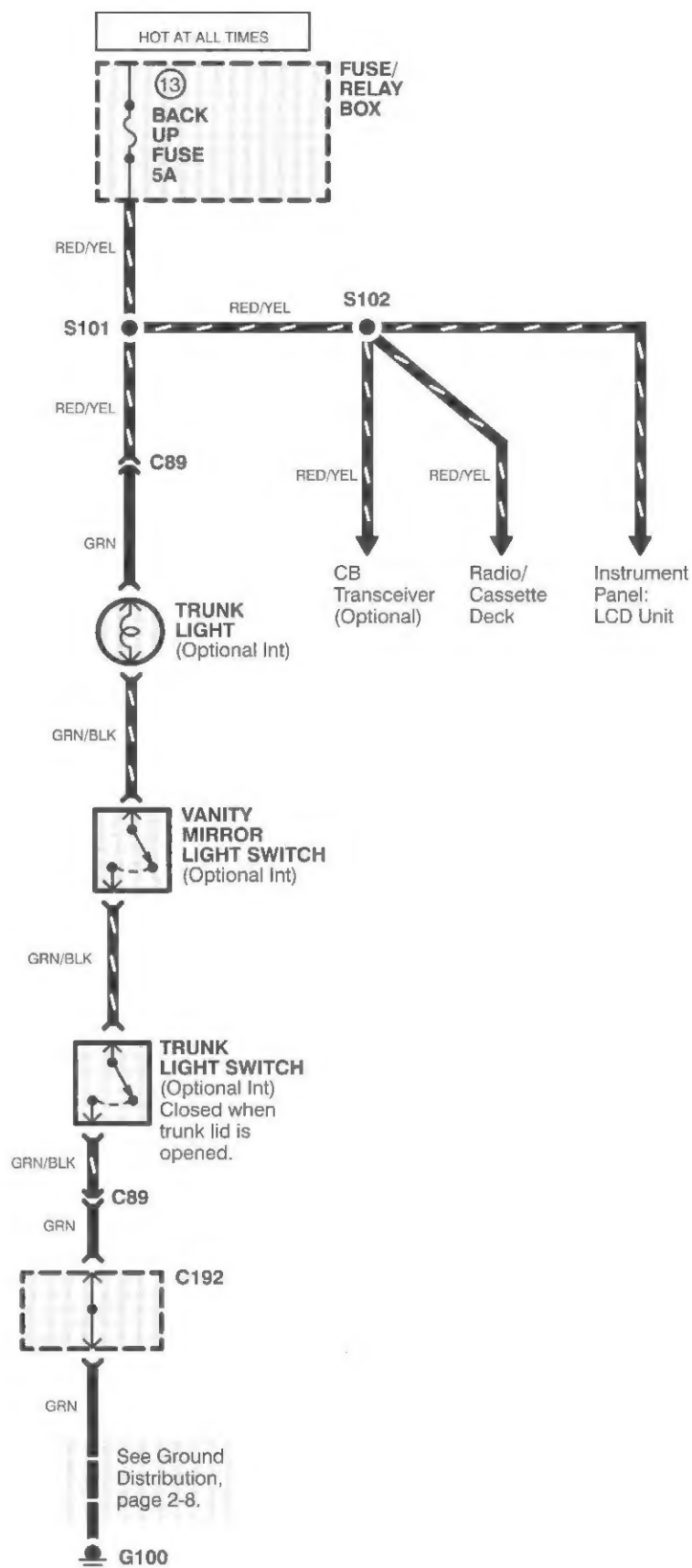
Brake Lights

Circuit Schematic



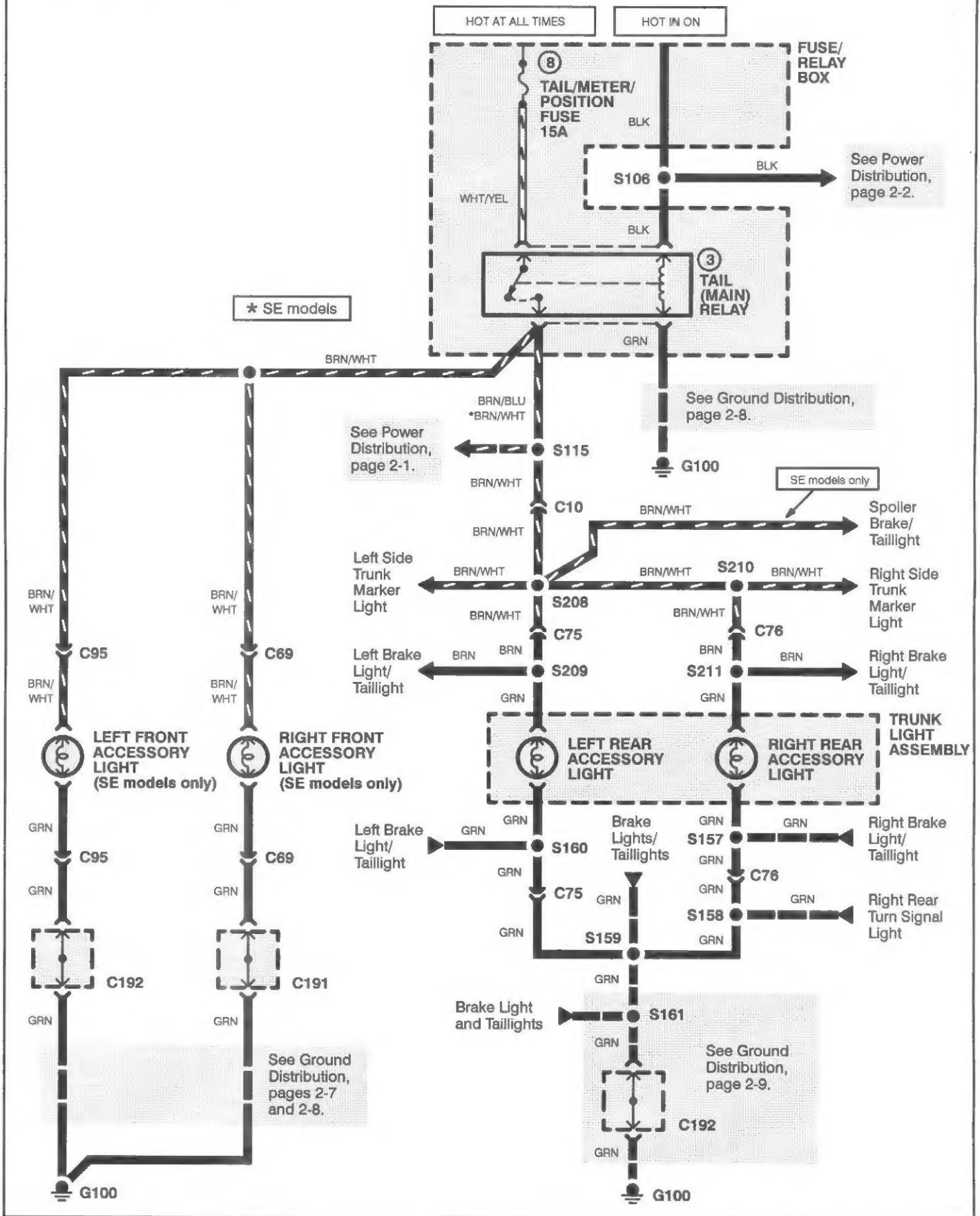
Trunk Light

Circuit Schematic



Accessory Lights

Circuit Schematic



Spoiler Brake/Taillight: SE Only

Circuit Schematic

